

FACT SHEET FOR NPDES PERMIT WA-003168-2

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

SUMMARY

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) Permit for the City of Seattle's Combined Sewer Overflow (CSO) permit. The fact sheet explains the nature of the proposed discharges, the Department of Ecology's (the Department's) decisions on limiting discharges from combined sewer overflow systems, and the regulatory and technical basis for those decisions. The fact sheet and draft permit are available for review (see Appendix A--Public Involvement for more detail on the public notice procedures).

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the Wastewater Discharge Permit Program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	City of Seattle
Facility Name and Address	700 Fifth Avenue, Suite 4900 P.O. Box 34018 Seattle, WA 98124-4018
Facility Description	Combined Sewer System and Combined Sewer Overflow (CSO) Outfalls
Discharge Location	Refer to Appendix C, Table J. Permitted CSO Outfalls
Water Body ID Number	Refer to Appendix C, Table J. Permitted CSO Outfalls

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

INTRODUCTION

Combined sewer systems (CSS) are wastewater collection systems designed to carry sanitary sewage (consisting of domestic, commercial, and industrial wastewater) and storm water (surface drainage from rainfall or snowmelt) in a single pipe to a treatment facility. During dry weather, CSSs convey domestic, commercial, and industrial wastewater. In periods of rainfall or snowmelt, total wastewater flows can exceed the capacity of the CSS and treatment facilities. When this occurs, the CSS is designed to overflow directly to surface water bodies, such as lakes, rivers, estuaries, or coastal waters. Both the federal and state governments have promulgated laws and regulations which govern the permitting of CSO discharges.

OVERVIEW OF WASHINGTON STATE LAW AND REGULATION

Law, RCW 90.48.480 Reduction of Sewer Overflows -- Plans -- Compliance Schedule

The Department of Ecology shall work with local governments to develop reasonable plans and compliance schedules for the greatest reasonable reduction of combined sewer overflows. The plan shall address various options, including construction of storage tanks for sewage and separation of sewage and stormwater transport systems. The compliance schedule shall be designed to achieve the greatest reasonable reduction of combined sewer overflows at the earliest possible date. The plans and compliance schedules shall be completed by January 1, 1988. A compliance schedule will be a condition of any waste discharge permit issued or renewed after January 1, 1988.

Regulation, Chapter 173-245 WAC

This regulation defines “The greatest reasonable reduction” to be control of each CSO such that the average of one untreated discharge may occur per year.

- CSO Treatment must provide “Primary Treatment” which is defined as 50% removal of total suspended solids and discharge less than 0.3 ml/l/hr of settleable solids.
- CSO Reduction Plan. This document must include the following elements:
 - Documentation of CSO Activity
 - Analysis of control and treatment alternatives
 - Analysis of selected control and treatment projects
 - Priority Ranking (of CSO reduction projects)
 - Municipalities shall propose a schedule for achievement of the “greatest reasonable reduction”

EPA’S FEDERAL REQUIREMENTS FOR CSOs

EPA Combined Sewer Overflow Policy (dated April 19, 1994) includes technology-based limits which are referred to as the nine minimum controls and the requirement to complete a long-term reduction plan to reduce CSO discharges.

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Nine Minimum Controls (NMC)

1. Proper operation and regular maintenance programs for the sewer system and CSO outfalls.
2. Maximum use of the collection system for storage.
3. Review and modification of pretreatment requirements to ensure that CSO impacts are minimized.
4. Maximization of flow to the POTW for treatment.
5. Elimination of CSOs during dry weather.
6. Control of solid and floatable materials in CSOs.
7. Pollution prevention programs to reduce containments in CSOs.
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.
9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

Elements of the Long Term Control Plan (LTCP)

1. Characterization, Monitoring and Modeling of the Combined System
2. Public Participation
3. Consideration of Sensitive Areas
4. Evaluation of Alternatives
5. Cost/Performance Considerations
6. Operational Plans
7. Maximizing Treatment at Existing POTWs
8. Implementation Schedule
9. Post-Construction Monitoring

The Combined Sewer Overflow Policy and EPA's *Guidance for Permit Writers* outlines two phases for CSO permits as follows:

Phase 1 Permits: Requires the demonstration of the implementation of the nine minimum controls and the development of a Long Term Control Plan.

Phase 2 Permits: Requires the implementation of the Long Term Control Plan.

HISTORY

The City of Seattle's combined sewer system dates from the 1890s, when the use of a common sewer system for sanitary sewage and storm drainage was practical. The City of Seattle is responsible for the sewage collection system serving areas of up to 1000 acres in size. The King County Department of Natural Resources is responsible for sewer trunks serving areas greater than 1000 acres and for wastewater and CSO treatment plants.

Over the last three decades, the City has made significant progress towards CSO control. Overflows have been reduced by undertaking partial separation projects and by increasing collection system storage.

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The earlier separation projects were supplemented with storage tanks where necessary to further reduce CSOs. During the 1980s, increasing the storage capability became the City's preferred solution to controlling CSOs. The City has constructed 34 CSO storage tanks and has enlarged pipes for overflow control which were designed with capacity to store up to the one-year frequency storm.¹

The City has compiled 3 major CSO reduction planning documents as follows:

1. 1980 CSO Control Plan – This plan proposed and implemented various storage projects.
2. 1988 CSO Control Plan – This plan proposed and implemented various sewer separation projects and storage projects.
3. 2001 CSO Reduction Plan Amendment – This plan proposed the implementation of various best management practices as a way to reduce the volume of CSOs prior to the implementation of additional storage projects.

COLLECTION SYSTEM STATUS

The City operates and maintains the sewerage system within the City limits and in adjacent areas. The system includes approximately 1850 miles of combined, partially separated, separated, and storm drain sewers. Approximately two-thirds of the total sewerage system is combined sewer.² Refer to Appendix C, Figure G, The City of Seattle Combined Sewer Overflow Map.

Reference to sewer system or collection system in the permit shall be taken to refer to the combined sewer system owned, operated, and maintained by the City of Seattle.

TREATMENT PROCESSES

The City of Seattle does not own a wastewater or CSO treatment plant. All the sewerage collected in the City's sewer system is conveyed to King County for treatment. King County operates two secondary wastewater treatment plants (West Point WWTP and the South WWTP) and four CSO storage and treatment facilities (Carkeek, Alki, Elliott West and Henderson/MLK). Ultimately, wastewater that is treated at all of these facilities is discharged to the Puget Sound, Elliott Bay, or the Duwamish River.

DISCHARGE OUTFALL

The 1998 NPDES permit authorized discharge from 113 CSO outfalls. Over the last seven years, the City has actively worked to reduce the volume and frequency of CSO discharges. This reduction has included removal of CSO discharges from numerous outfalls, resulting in a reduction of 20 NPDES permit-authorized outfalls.

The NPDES permit currently authorizes CSO discharges from 93 separate outfall pipes. Each outfall pipe varies in its configuration in terms of depth and distance from shore. Table J, in Appendix C, includes data about each of the outfalls including the identification number, the receiving waterbody and the latitude and longitude of the discharge into the receiving water. Figure K, in Appendix C, shows a map of the location of all of the CSO outfalls as mapped in the City of Seattle's GIS.

¹ Excerpt from City of Seattle, *NPDES Permit*, Issuance Date April 28, 1998

² City of Seattle, *Combined Sewer Overflow Reduction Plan Amendment*, December 2001, p 45.

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RESIDUAL SOLIDS

All the residual solids from the City's sewer system are conveyed to King County's secondary wastewater treatment plants for treatment. King County's treatment system includes screening residual solids from the wastewater. The solids are then washed and compacted prior to disposal in a landfill.

PERMIT STATUS

The previous permit for the City of Seattle's CSO discharges was issued on April 28, 1998. This permit was effective from April 30, 1998, and expired on June 20, 2002. The permit was administratively extended on June 24, 2002, and will remain in effect until the permit is reauthorized.

An application for permit renewal was submitted to the Department on December 27, 2001, and accepted by the Department on June 18, 2002.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

Various outfalls that are authorized under the permit were inspected February through March of 2005. The inspection report has not yet been issued.

During the history of the previous permit, the Permittee has had good compliance based on Discharge Monitoring Reports (DMRs) submitted to the Department, inspections conducted by the Department and with the various submittals required by the Department.

Dry weather overflows (DWO) are a reportable violation of the permit. The Permittee reported the DWOs in a timely manner and in accordance with the condition of the permit. The following table lists the total number of the dry weather overflow occurrences over the past 8 years.

TABLE A. SUMMARY OF DRY WEATHER OVERFLOWS

Year	Frequency of DWOs	Estimate Total Volume (gallons)	Comments
1998	3	3,124,740	Data not available for 1 event
1999	3	9,000	Data not available for 2 events
2000	58	1,828,765	
2001	37	1,927,039	
2002	4	906,926	
2003	0	0	
2004	3	5,120	
2005	2	177,747	January – May

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The Permittee complied with the submission of the following permit submittal requirements. Following Table B, Submittal Summary, is a brief discussion about each of the submittals.

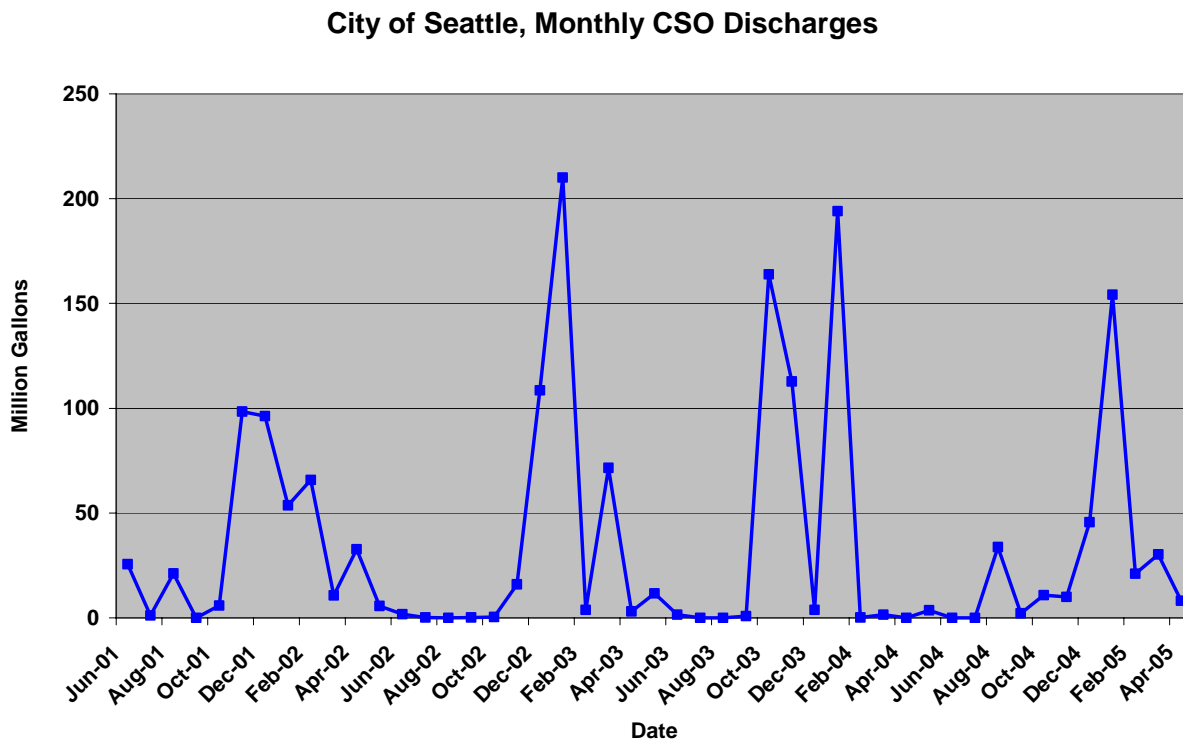
TABLE B. SUBMITTAL SUMMARY

Submittal Name	Required Submittal Date
1. Monthly Report	Monthly
2. Annual CSO Report	June 30, 1999, annually thereafter
3. Nine Minimum Control Report	June 30, 1999
4. CSO Reduction Plan Amendment	December 31, 2001
5. Public Participation Plan	December 31, 1999
6. CSS Characterization Monitoring and Modeling Study	June 30, 2001
7. CSO Control Alternatives Identification, Analysis, Priority Ranking and Implementation Schedule	June 30, 2001
8. Operation and Maintenance Plan	December 31, 2001
9. Post Construction Compliance Monitoring Plan	December 31, 2001
10. Application for Permit Renewal	December 31, 2001

MONTHLY REPORT

The monthly reports summarized the number of CSO events, overflow duration (in hours), and volume of combined sewage discharged (both in cubic feet and gallons) from each permitted CSO outfall each month. The report also included a brief listing of any flow monitoring repairs or problems that occurred during the month. The following graph shows the monthly CSO flow (in millions of gallons of CSO discharged per month) over the last several years. The majority of CSO discharges occurring during the wet weather months from October through March.

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**FIGURE C: MONTHLY CSO DISCHARGES (JUNE 2001 THROUGH MAY 2005)****ANNUAL CSO REPORT**

The annual report submittal is a regulatory requirement by WAC 173-245-090(1). Per the regulation, this report is to detail: (a) the past year's frequency and volume of combined sewage discharge from each CSO site, (b) explains the previous year's CSO reduction accomplishments, and (c) lists the projects planned for the next year. The report must indicate whether a CSO site has increased over the baseline annual condition. If an increase has occurred, the Permittee must propose a project and/or schedule to reduce that site below its baseline conditions. This regulation specifically addressed reductions in CSOs through implementation of storage, separation, or at-site treatment.

The City's annual reports did not compare annual flows to any previously established baseline. The annual reports did compare flow data to previous years. The reports provide brief discussions about CSO control project accomplished for the current year, but did not always address action plans for the coming year. It is anticipated that similar comparison shall occur in the City's annual reports until such a time that detailed baselines are established.

The permit will require the Permittee to determine the baselines formally per WAC 173-245-090(1). Comparison of annual volume and frequency to baselines is anticipated to commence after baselines are established.

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Table D, Annual CSO Discharges Data Table, shows a summary of the discharge data over the previous seven years. Figure E, Annual CSO Discharges to Receiving Waters, shows graphically the total volume of combined sewage discharges to various receiving waters by the Permittee over the last seven years. The installation of in-line flow monitors at all CSO sites was completed in 2001. Therefore, data after January 2001 provide a more accurate estimate of the volume of CSOs. The Permittee attributes some of the yearly flow variability to rainfall patterns.

TABLE D: ANNUAL CSO DISCHARGES DATA TABLE

Receiving Waterbody	1998	1999	2000	2001	2002	2003	2004
Puget Sound	0.00	0.00	0.00	0.52	0.01	1.61	0.00
Union Bay	0.18	9.49	0.00	5.72	4.89	13.01	0.00
Salmon Bay	0.00	0.00	2.91	14.46	4.27	2.95	0.96
Portage Bay	2.53	2.02	1.08	9.23	1.57	5.51	1.84
West Waterway	0.12	1.64	0.00	3.22	0.20	11.31	2.98
Duwamish River	1.61	5.21	0.58	2.74	0.83	74.47	6.56
Longfellow Creek	2.30	0.21	0.00	7.42	0.00	0.76	6.92
East Waterway	0.21	0.11	0.05	0.60	0.11	0.02	33.67
Lake Union	0.00	0.00	17.09	97.19	75.24	66.90	59.70
Lake Washington	78.71	74.27	21.24	129.93	163.75	317.47	76.61
Elliot Bay	0.45	0.50	0.21	1.00	4.99	44.09	112.79
Total (Million Gallons)	86.12	93.44	43.16	272.02	255.86	538.10	302.02
Average Rainfall (in.)	36.1	39.7	23.3	31.2	25.8	32.8	28.0

City of Seattle, Annual CSO Discharges

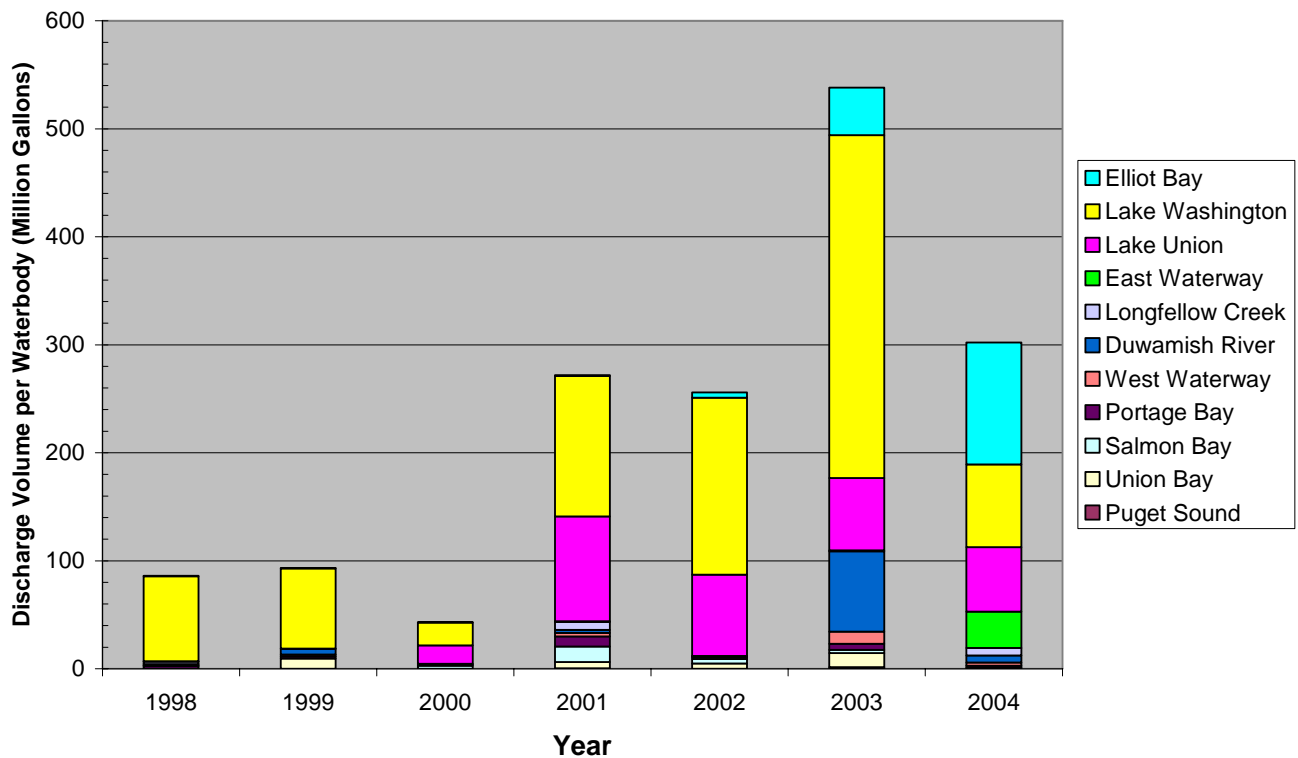


FIGURE E: ANNUAL CSO DISCHARGES TO RECEIVING WATERS

NINE MINIMUM CONTROL REPORT

This report was required to be submitted along with the first Annual CSO Report. The previous permit included an EPA form in Appendix C titled *Nine Minimum Controls Documentation* that the Permittee completed and submitted with this report. The report included ten attachments related to the Permittee's compliance with the nine minimum controls. The Permittee remained in compliance with the nine minimum controls.

CSO REDUCTION PLAN AMENDMENT (DATED DECEMBER 2001)

The CSO reduction plan amendment is a regulatory requirement by WAC 173-245-090 (2). Per the regulation, the plan shall include three elements: (a) an assessment of the effectiveness of the CSO reduction plan to date, (b) a reevaluation of the CSO sites' projects priority ranking; and (c) a listing of projects to be accomplished in the next 5 years.

The Permittee's 2001 CSO Reduction Plan amends the original CSO Control Plan submitted to the Department in 1988. This plan provided a summary of the City's sewer system including previously implemented projects to reduce CSOs and the existing CSO control facilities within the system. The plan identified six study areas in which to focus upcoming CSO reduction efforts. These areas are summarized in Table F, 2001 CSO Reduction Plan Study Areas.

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Extensive flow monitoring and modeling was done in each of the basins in the selected study areas. The data collected was used to define the focus and strategy for future CSO reduction projects.

The plan identifies CSO reduction projects to be implemented in the study areas during the years from 2001 through 2016. The project schedule includes primarily: (1) a focus of best management practices (BMPs) to more effectively use existing equipment and facilities in order to reduce CSO volumes and (2) installation of additional CSO storage facilities in order to retain CSO flows for later transport to the wastewater treatment plant.

TABLE F: 2001 REDUCTION PLAN, STUDY AREAS

Study Areas	Basins (24 CSOs in total)
North Lake Washington/Windermere	12, 13, 14, 15
Puget Sound/Magnolia	61, 62, 63, 64
South Lake Washington/South Genesee Street	39, 40, 41, 42, 43, 165
South Lake Washington/South Henderson	44, 45, 46, 47, 48, 49, 171
Longfellow Creek/Delridge	168, 169
Duwamish River/Diagonal Study	111

PUBLIC PARTICIPATION PLAN

This permit requirement was submitted as Appendix A in the draft and final version of the *Combined Sewer Overflow Reduction Plan Amendment*. In addition, the City prepared an Environmental Impact Statement (EIS) to support the reduction plan amendment and provide additional information to the public.

CSS CHARACTERIZATION MONITORING AND MODELING STUDY

As stated in the permit, the requirement for this submittal was that the Permittee shall complete a field assessment and mathematical modeling study to establish each CSO's location, baseline annual frequency, and baseline annual volume; to characterize CSO discharges; and to estimate historical impact, in accordance with WAC 173-245-040(2)(a). The permit allowed for the use of existing data with proper documentation. In addition, the permit stated specific requirements under the following categories.

- Rainfall Records Review
- CSS Records Review
- CSO and Water Quality Characterization
- Identification of Sensitive Areas
- CSS and Receiving Water Modeling

This permit requirement was submitted under the title of *Report of Findings City of Seattle, Seattle Public Utilities CSO Characterization Project* in January 2000. In the report, the chemical quality of Seattle's CSOs was evaluated based on data gathered by King County, Bremerton, and Vancouver, British Columbia on their CSOs. A statistical analysis of the analytical data with respect to specific land-use categories was used to characterize the chemical

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quality of Seattle's CSOs. The City provided a detail statistical evaluation for five chemicals [copper, zinc, fluoranthene, phenanthrene and bis(2-ethylhexyl)phthalate] which were considered to be most likely present in significant quantities as compared to the water quality standard (WQS) for these chemicals. They concluded only copper and maybe zinc may have the potential to exceed the WQS.

The report also analyzed existing sediment data from stations located within 775 feet of Seattle CSO outfalls. With regard to sediment, the report concluded that there are many current and historical sources of sediment contaminants and therefore could not clearly link sediment contamination with specific CSOs.

The *Report of Findings City of Seattle, Seattle Public Utilities CSO Characterization* was approved by the Department on November 18, 2003.

CSO CONTROL ALTERNATIVES IDENTIFICATION, ANALYSIS, PRIORITY RANKING AND IMPLEMENTATION SCHEDULE

This permit requirement was submitted to the Department under the title of *Combined Sewer Overflow Reduction Plan Amendment*, Draft, June 2001. This document includes the development and analysis of CSO control alternatives, CSO reduction priority ranking, and the project implementation schedule.

OPERATION AND MAINTENANCE PLAN

The Department required that the City submit a revised operations and maintenance plan. Specifically, the permit outlined the following minimum requirement for this report.

The Permittee shall submit a revised operation and maintenance plan that addresses implementation of the selected CSO controls. The revised operation and maintenance plan shall maximize the removal of pollutants during and after each precipitation event using all available facilities within the collection system.

The document submitted by the Permittee outlines some general information about the maintenance and operating practices in use.

POST CONSTRUCTION COMPLIANCE MONITORING PLAN

The Post Construction Compliance Monitoring Plan was submitted by the City in December 2001 and approved by the Department in November 2003. The plan includes two components titled: (1) CSO quantity monitoring and (2) post-construction water quality assessment.

In terms of the first component, the City maintains a comprehensive quantitative monitoring program which includes monitoring volume, frequency, and duration of all CSO events at all CSO outfalls. This data is presented to the Department in both monthly CSO reports and annual CSO reports.

The second component, the City proposed in this document to have a phased approach to assess the impacts of CSO reduction projects on the receiving water quality. Phase I of the post-construction water quality assessment, the City proposed to evaluate three representative receiving water environments using models (i.e. dilution zone modeling). The monitoring

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locations would include a marine (Puget Sound), a river (Duwamish River or Longfellow Creek), and a lake (Lake Washington). The dilution zone modeling along with data on typical pollutant found in CSO discharges³ would be used to evaluate the impacts on receiving waters. Phase II of the post-construction water quality assessment proposed to implement pilot field monitoring. The scope of the monitoring would be dependent on the results of Phase I. The pilot monitoring was to include end-of-pipe CSO effluent sampling.

The Department needs further development of a comprehensive Post Construction Compliance Monitoring Plan and approval of a plan before implementation begins. The Department needs to ensure that the plan serves to verify compliance and continuous progress toward a reduction in CSOs and improved water quality.

APPLICATION FOR PERMIT RENEWAL

The application for NPDES permit renewal included required information pertaining to each of the CSO outfalls to be included in the permit along with a system map. Letters from the City dated September 17, 200, and September 23, 2003, requested a few minor changes to outfalls to be included in the permit based on recent finding by the Permittee. The final list of permitted outfalls is shown in Appendix C, Table J, Permitted CSO Outfalls.

WASTEWATER CHARACTERIZATION

Monitoring the concentration of pollutants in the CSO discharges was not required in the NPDES application or the monthly discharge monitoring reports. The effluent from Seattle CSOs has not been chemically characterized. Rather, the City of Seattle issued the previously mentioned report, *Report of Findings City of Seattle, Seattle Public Utilities CSO Characterization*, which provides information about pollutants typically found in CSO discharges. The following table summarizes some of the chemical data presented in this report.

³ Environmental Solutions Group and Seattle Public Utilities, *Report of Findings: City of Seattle, Seattle Public Utilities CSO Characterization Project*, January 2000.

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TABLE G: STATISTICS FOR FREQUENTLY DETECTED SUBSTANCES IN CSO WATER QUALITY DATABASE⁴

Analyte	Units	Number of Samples Analyzed	Number of Detected Values	Average of Detected Values	Maximum Detected Value	Minimum Detected Value
Zinc	mg/L	259	259	0.13	0.828	0.01
Copper	mg/L	261	257	0.05	0.36	0.004
Lead	mg/L	259	245	0.03	0.34	0.002
Chromium	mg/L	256	224	0.01	0.47	0.001
Arsenic	mg/L	250	206	0.003	0.0122	0.0005
Nickel	mg/L	227	157	0.02	1.11	0.001
Cadmium	mg/L	244	153	0.001	0.014	0.0001
BEHP	µg/L	146	132	10.26	135	1
Fluoranthene	µg/L	172	118	0.42	5.5	0.02
Phenanthrene	µg/L	171	125	0.41	3.5	0.03
Antimony	mg/L	188	124	0.002	0.00474	0.0003
Fecal coliform bacteria	colonies/100 mL	96	96	1,131,042	8,000,000	30,000

NOTES: Analytes in bold were selected as substances of concern

All metals concentrations are total metals

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the surface water quality standards (Chapter 173-201A WAC), ground water standards (Chapter 173-200 WAC), sediment quality standards (Chapter 173-204 WAC), or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Compliance with this permit constitutes reasonable progress towards complying with WAC 173-245. This permit contains an approved compliance schedule in accordance with WAC 173-220-140, as amended.

⁴ Deshler, Tad, A Multivariate Statistical Approach to Characterizing Impacts from Combined Sewer Overflows Using Regional Chemistry Data, 2001.

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TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The specific technology-based limits that apply to CSOs are the Nine Minimum Controls.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established surface water quality standards. The Washington State surface water quality standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state.

Chapter 173-245 WAC requires that "All CSO sites shall achieve and at least maintain the greatest reasonable reduction, and neither cause violations of applicable water quality standards, nor restrictions to the characteristic uses of the receiving water, nor accumulation of deposits which: (a) Exceed sediment criteria or standards; or (b) have an adverse biological effect." "The greatest reasonable reduction" means control of each CSO such that an average of no more than one untreated discharge may occur per year.

Municipalities are expected to develop CSO reduction plans to achieve this level of control. These plans are substantially equivalent to the long-term control plan (LTCP) as defined by EPA in their CSO control policy. Seattle's CSO Reduction Plan was conditionally approved in 1988 with the 2001 amendment approved in 2003. This permit requires the City to submit an amendment of its CSO Reduction Plan which complies with the requirements of WAC 173-245-090(2), and includes additional elements which implement EPA's CSO control policy.

These requirements provide for attainment of water quality standards (WQS) through the "presumption approach." Under the presumption approach, CSO controls are presumed to attain WQS if certain performance criteria are met. A program that meets the criteria specified in WAC 173-245 and EPA's CSO control policy is presumed to provide an adequate level of control to meet the water quality-based requirements of the Clean Water Act, provided the Department of Ecology determines that such presumption is reasonable based on characterization, monitoring, and modeling of the system, including consideration of sensitive areas.

It is not possible with current knowledge and technology to determine whether numeric water quality-based effluent limitations are necessary for CSOs, and, if so, what the limitations should be. For that reason, this permit contains a narrative requirement in S1.A. The numerical water quality-based effluent limitations are anticipated to be included in the future permit only after the long-term control plan is in place and after collection of sufficient water quality data.

The water-quality based requirement included in this permit is for the Permittee to identify corrected or controlled CSOs that meet the State's one untreated discharge per year per CSO standard. This list is to be submitted at the end of the permit cycle. Future permits are

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anticipated to limit controlled or corrected CSO discharges to one untreated discharge per year per CSO based on a long-term average which is currently defined as a 5-year average based on the permit cycle.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's water quality standards for surface waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving water while remaining protective of aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

There are no numeric surface water quality-based limits prescribed in this permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other diseases and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit will not cause a loss of beneficial uses.

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DESCRIPTION OF THE RECEIVING WATER

The City's CSO outfalls discharge to various receiving waters as shown below in Table H, City of Seattle, 303d List Summary. Some of these water bodies are impaired and are listed on the 1998 303d list or the 2002/2004 draft 303d list. Figure I: Impaired Waters in Vicinity of City of Seattle, shows the general area of impaired water around the Puget Sound area. This listing includes only category 5 which are "polluted waters that require a TMDL. The 303(d) list is the traditional list of impaired waterbodies. Placement in this category means that Ecology has data showing that the water quality standards have been violated for one or more pollutants, and there is no TMDL or pollution control plan. TMDLs are required for the water bodies in this category."

TABLE H: CITY OF SEATTLE, 303D LIST SUMMARY

Receiving Water	Class	303d List 1998	Proposed 303d list 2002/2004 Water, unless otherwise noted
Duwamish Waterway	B (Marine)	pH Total PCBs (tissue)	Total PCBs (tissue) PAHs (tissue) 4,4 DDD (tissue) 4,4 DDE (tissue) 4,4 DDT (tissue) Alpha BHC (tissue) Dissolved oxygen pH
Elliott Bay	A (Marine)	Fecal Coliform	Dissolved oxygen Fecal Coliform
Lake Union, Ship Canal	Lake	No Data	Aldrin Fecal Coliform Lead
Lake Washington	Lake	Fecal Coliform	Ammonia-N Fecal Coliform Total PCBs (tissue)
Longfellow Creek	A (Fresh)	Fecal Coliform	Dissolved oxygen Fecal Coliform
Puget Sound, S-central, central	AA (Marine)	Fecal Coliform	Ammonia-N Fecal Coliform Dieldrin (tissue) Dioxins (tissue) Furans (tissue)

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**FIGURE I: IMPAIRED WATERS IN VICINITY OF THE CITY OF SEATTLE**

Characteristic uses include the following:

Class AA (Extraordinary): water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

Class A (Excellent): water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

Class B (Good): water supply (industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; secondary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for most uses.

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Class Lake: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Class ⁵	AA (Marine)	A (Marine)	A (Fresh)	B (Marine)	Lake
Fecal Coliforms Number of organisms/100 mL maximum geometric mean, And not have greater than 10 % of all samples greater than	14 43	14 43	100 200	100 200	50 100
Dissolved Oxygen For marine, when natural upwelling conditions, such as upwelling, occur, causing dissolved oxygen to be depressed near or below the values stated, natural dissolved oxygen levels may be degraded by up to 0.2 mg/L by human-caused activities. mg/L minimum	7.0	6.0	8.0	5.0	No measurable decrease from natural conditions.
Temperature Degrees Celsius maximum due to human activities or incremental increases above natural conditions per rule	13.0	16.0	18.0	19.0	No measurable change from natural conditions.
pH Standard units, with allowance for human-caused variation	7.0 to 8.5	7.0 to 8.5	6.5 to 8.5	7.0 to 8.5	No measurable change from natural conditions.
Turbidity Maximum allowed NTUs above background if background is 50 NTU or less, or not more than 10% increase if background is greater than 50 NTU.	5	5	5	10 if background < 50 NTU or no more than 20% increase if background is >50 NTU.	Shall not exceed 5 NTU over background.
Toxics⁶	Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the Department.				

⁵ Chapter 173-201A WAC, WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF WASHINGTON, Last Update: 11/18/97, WAC 173-201A-260(2), 2003 version

⁶ Chapter 173-201A WAC, WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF WASHINGTON, Last Update: 7/1/03

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HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is undergoing technology-based upgrades based on a Department order or permit, and thus should be regulated for human health-based criteria only after upgrades are completed

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has been unable to determine at this time the potential for this discharge to cause a violation of sediment quality standards. If the Department determines in the future that there is a potential for violation of the sediment quality standards, an order will be issued to require the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated ground water quality standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED APRIL 28, 1998

Existing Limits	Proposed Limits
Compliance with Nine Minimum Controls	Compliance with Nine Minimum Controls

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MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the effluent limitations (i.e. CSO control requirements) are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 2002) for CSO permit.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S.4 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

COMBINED SEWER OVERFLOWS

In accordance with RCW 90.48.480 and Chapter 173-245 WAC, proposed permit Condition S.5 requires the Permittee to submit an annual Combined Sewer Overflow (CSO) report and to update its CSO reduction plan at the time of permit renewal.

In accordance with EPA's Federal CSO Control Policy, proposed permit Condition S7 requires the Permittee to submit documentation of compliance with the nine minimum controls and to provide a listing of controlled CSOs.

In accordance with EPA's Federal CSO Control Policy, proposed permit Condition S8 requires the Permittee to submit documentation of public participation in modifications to CSO control plans such as updates to the reduction plan, to establish baseline conditions for annual volume of CSO discharged per outfall, provide reduction plans for all uncontrolled CSOs, and develop a post construction monitoring plan.

OUTFALL EVALUATION

Proposed permit Condition S.6 requires the Permittee to conduct an outfall inspection at each CSO site and submit a report detailing the findings of that inspection. The purpose of the inspection is to locate and determine the condition of the discharge pipe and diffusers.

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GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

Accordingly, General Conditions have not been modified to account for the fact that the Permittee does not own or operate a wastewater treatment plant (POTW). The requirements in G9 are intended to apply to wastewater treatment plants, and therefore do not apply to this permit. In G12, all requirements, provisions and defenses of 40 CFR 122.41 are incorporated into this permit, but 40 CFR 122.42 does not apply to the City's system.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet water quality standards, sediment quality standards, or ground water standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

City of Seattle

City of Seattle, Combined Sewer Overflow Reduction Plan, December 2001.

City of Seattle, Combined Sewer Overflow Control Plan, 1988.

City of Seattle, Sewage Collection System Modifications, February 1980.

Environmental Protection Agency (EPA)

EPA, Combined Sewer Overflow Guidance for Permit Writers, September 1995.

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

Laws and Regulations (<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

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1994. Permit Writer's Manual. Publication Number 92-109

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1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

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APPENDIX A—PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on September 4, 2001, and September 11, 2001, in the *Seattle Times* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on August 17, 2005, in the *Seattle Times/Post-Intelligencer* to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30)-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 425-649-7201, or by writing to the address listed above.

This permit and fact sheet were written by Karen Burgess.

APPENDIX B—GLOSSARY

This Appendix B—Glossary is provided for informational purposes and is not intended to provide precise definitions of permit terms. Ecology recognizes that state and federal terms and descriptions may differ.

CSO-Related Terminology

GLOSSARY OF CSO TERMS (FROM EPA’S CSO GUIDANCE FOR PERMIT WRITERS)

Average Number of Overflow Events Per Year—The total number of combined sewer overflow events that occurred during the term of the permit divided by the permit term in years.

Combined Sewer Overflow—The discharge from a combined sewer system to a receiving water of the United States prior to reaching the publicly owned treatment works treatment plant.

Combined Sewer Overflow Event—The discharges from any number of points in the combined sewer system resulting from a single wet weather event that do not receive minimum treatment (i.e., primary clarification, solids disposal, and disinfection, where appropriate). For example, if a storm occurs that results in untreated overflows from 50 different CSO outfalls within the CSS, this is considered *one* overflow event.

Combined Sewer System—A wastewater collection system owned by a state or one or more municipalities (as defined by Section 502(4) of the Clean Water Act) which conveys sanitary wastewaters (domestic, commercial, and industrial wastewaters) and storm water through a single-pipe system to a publicly owned treatment works treatment plant (as defined in 40 CFR 403.3(p)).

Dry Weather Flow Conditions—Hydraulic flow conditions within the combined sewer system resulting from one or more of the following: flows of domestic sewage, ground water infiltration, commercial and industrial wastewaters, and any other nonprecipitation event-related flows (e.g., tidal infiltration under certain circumstances). Other nonprecipitation event-related flows that are included in dry weather flow conditions will be decided by the permit writer based on site-specific conditions.

Dry Weather Overflow—A combined sewer overflow that occurs during dry weather flow conditions.

Precipitation Event—An occurrence of rain, snow, sleet, hail, or other form of precipitation. Precipitation events are generally characterized by parameters of duration and intensity (inches or millimeters per unit of time). This definition will be highly site-specific. For example, a precipitation event could be defined as 0.25 inches or more of precipitation in the form of rain or 3 inches or more of precipitation in the form of sleet or snow, reported during the preceding 24-hour period at a specific gaging station. A precipitation event could also be defined by a minimum time interval between measurable amounts of precipitation (e.g., 6 hours between the end of rainfall and the beginning of the next rainfall).

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Primary Clarification or Equivalent—The level of treatment that would typically be provided by one or more treatment technologies under peak wet weather flow conditions. Options for defining primary clarification include a design standard (e.g., side wall depth and maximum overflow rate), a performance standard (e.g., percent removal), or an effluent standard (e.g., concentration of pollutants). "Equivalent to primary clarification" is site-specific and includes any single technology or combination of technologies shown by the Permittee to achieve primary clarification under the presumption approach. The Permittee is responsible for showing equivalency to primary treatment as part of the evaluation of CSO control alternatives during LTCP development. Primary clarification is discussed in more detail in the *Combined Sewer Overflows-Guidance for Long-term Control Plan* (EPA, 1995a).

Sensitive Areas—Areas of particular environmental significance or sensitivity that could be adversely affected by a combined sewer overflow, including Outstanding National Resource Waters, National Marine Sanctuaries, water with threatened or endangered species, waters with primary contact recreation, public drinking water intakes, shellfish beds, and other areas identified by the Permittee or National Pollutant Discharge Elimination System permitting authority, in coordination with the appropriate state or federal agencies.

Solid and Floatable Materials—Solid or semi-solid materials should be defined on a case-by-case basis determined by the control technologies proposed by the Permittee to control these materials. The term generally includes materials that might impair the aesthetics of the receiving waterbody.

Wet Weather Flow Conditions—Hydraulic flow conditions within the combined sewer system resulting from a precipitation event. Since the definition of precipitation event is site-specific, the permit writer should evaluate and define certain site-specific weather conditions that typically contribute to wet weather flow. EPA encourages permit writers to include snowmelt as a condition that typically contributes to wet weather flow.

GLOSSARY OF CSO TERMS (FROM ECOLOGY'S PERMIT WRITER'S MANUAL, P. V-23)

Combined Sewer Overflow (CSO)—An event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Event—A CSO event is defined as a 24-hour minimum inter-event time for a CSO outfall.

Inter-Event Time (IET)—The dry period or time steps between storm or CSO events. A CSO event is defined as a 24-hour minimum inter-event time for a CSO outfall.

Minimum Inter-Event Time (MIET)—The amount of dry time or non-overflow time required to indicate a storm event or CSO event is independent ($CV = 1$).

Storm Duration—The time from the first wet time step at the beginning of the storm event to the last wet time step ending the event.

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Storm Event—A period of rainfall separated from other wet time steps by a dry period equal to or greater than the minimum precipitation inter-event time.

Storm Inter-Arrival Time—The time from the beginning of one storm event to the beginning of the next storm event (equal to one storm duration and one inter-event time).

Threshold Rainfall—The amount of rainfall necessary to cause runoff. In the Portland, Oregon area this varies from 0.05 to 0.1 inch, depending on length of the storm.

Wet Time Steps—A time increment in a precipitation record in which a measurable amount of precipitation occurs. The measurable amount may be defined as threshold rainfall.

General Terminology

Acute Toxicity—The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART—An acronym for “all known, available, and reasonable methods of prevention, control, and treatment.”

Ambient Water Quality—The existing environmental condition of the water in a receiving water body.

Ammonia—Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation—The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation—The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)—Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

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BOD₅—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass—The intentional diversion of waste streams from any portion of a treatment facility.

CBOD₅—The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD₅ is given in 40 CFR Part 136.

Chlorine—Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity—The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)—The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling—A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample—A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity—Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

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Continuous Monitoring—Uninterrupted, unless otherwise noted in the permit.

Critical Condition—The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor—A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria—Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample—A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial User—A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)—"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference—A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

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Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility—A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)—The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility—A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone—A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

Pass Through—A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of state water quality standards.

pH—The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User—A Potential Significant Industrial User is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day; or

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- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)—A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)—

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of nondelegated POTWs or to the POTW in the case of delegated POTWs.

State Waters—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)—Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

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Upset—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit—A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C - PERMITTEE INFORMATION**Table J: Permitted CSOs Sorted by Outfall (or Basin) Number**

Outfall Number	Overflow Outfall Location	Receiving Water Body	Water Body ID No.	Latitude (North)	Longitude (West)
12	NE 60th Street at NE Windemere Road	Lake Washington	WA-08-9350	47° 40' 16" N	122° 15' 11" W
13	Windemere Park NE 50th St.	Lake Washington	WA-08-9350	47° 39' 50" N	122° 15' 55" W
14	55th Ave. NE at NE 43rd St.	Lake Washington	WA-08-9350	47° 39' 33" N	122° 16' 05" W
15	51st Ave. NE at NE Laurelhurst Ln.	Lake Washington	WA-08-9350	47° 39' 19" N	122° 16' 17" W
16	Webster Pt NE at W Laurelhurst Drive	Lake Washington	WA-08-9350	47° 38' 54" N	122° 16' 41" W
18	38th Ave. NE at NE 41st St.	Union Bay	WA-08-9350	47° 39' 24" N	122° 17' 16" W
19	NE 45th Street at Montlake Blvd. NE	Union Bay	WA-08-9350	47° 39' 40" N	122° 17' 52" W
20	Shelby St. at E. Park Drive	Union Bay	WA-08-9350	47° 38' 49" N	122° 18' 02" W
22	39th Avenue E at E Lakeside Blvd.	Union Bay	WA-08-9350	47° 38' 34" N	122° 16' 58" W
24	43rd Ave. E. at E. Lee St.	Lake Washington	WA-08-9350	47° 37' 51" N	122° 16' 34" W
25	43rd Ave. E. at E. Lee St.	Lake Washington	WA-08-9350	47° 37' 51" N	122° 16' 33" W
26	Denny Blaine Pl. E.	Lake Washington	WA-08-9350	47° 37' 11" N	122° 16' 46" W
27	Lake Washington Blvd.	Lake Washington	WA-08-9350	47° 36' 54" N	122° 16' 49" W
28	Lake Washington Blvd. E. at E. Pike St.	Lake Washington	WA-08-9350	47° 36' 50" N	122° 16' 50" W
29	Lake Washington Blvd. E. at E. James St.	Lake Washington	WA-08-9350	47° 36' 25" N	122° 16' 57" W
30	Lake Washington Blvd. E. at E. Alder St.	Lake Washington	WA-08-9350	47° 36' 21" N	122° 16' 58" W
31	Lake Washington Blvd. S. at S. Main St.	Lake Washington	WA-08-9350	47° 36' 01" N	122° 17' 05" W
32	Lake Washington Blvd. S. at S. Dearborn St.	Lake Washington	WA-08-9350	47° 35' 45" N	122° 17' 11" W
33	Lake Washington Blvd. S. at S. Charles St.	Lake Washington	WA-08-9350	47° 35' 40" N	122° 17' 12" W
34	Lake Washington Blvd. S. at S. Charles St.	Lake Washington	WA-08-9350	47° 35' 40" N	122° 17' 12" W
35	Lake Washington Blvd. S. at S. Massachusetts St.	Lake Washington	WA-08-9350	47° 35' 15" N	122° 17' 05" W
36	Lake Washington Blvd. S. at S. College St.	Lake Washington	WA-08-9350	47° 34' 57" N	122° 17' 10" W
37	Lake Washington Blvd. S. at S. Landing Pkwy.	Lake Washington	WA-08-9350	47° 34' 24" N	122° 16' 49" W
38	Lake Washington Blvd. S. at 45th Ave. S.	Lake Washington	WA-08-9350	47° 34' 17" N	122° 16' 32" W

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Outfall Number	Overflow Outfall Location	Receiving Water Body	Water Body ID No.	Latitude (North)	Longitude (West)
39	Lake Washington Blvd. S. - E. of 46th Ave. S.	Lake Washington	WA-08-9350	47° 34' 16" N	122° 16' 31" W
40	Lake Washington Blvd. S. at 49th Ave. S.	Lake Washington	WA-08-9350	47° 34' 06" N	122° 16' 19" W
41	Lake Washington Blvd. S. at 50th Ave. S.	Lake Washington	WA-08-9350	47° 34' 05" N	122° 16' 12" W
42	Lake Washington Blvd. S. at S. Snoqualmie St.	Lake Washington	WA-08-9350	47° 33' 44" N	122° 15' 60" W
43	Lake Washington Blvd. S at S Alaska Street	Lake Washington	WA-08-9350	47° 33' 38" N	122° 15' 50" W
44	Lake Washington Blvd. S - S of Juneau Street	Lake Washington	WA-08-9350	47° 32' 50" N	122° 15' 18" W
45	57th Avenue South at South Brighton Street	Lake Washington	WA-08-9350	47° 32' 29" N	122° 15' 35" W
46	S Island Drive at S Grattan Street	Lake Washington	WA-08-9350	47° 31' 46" N	122° 15' 42" W
47	Seward Park Avenue S at S Henderson Street	Lake Washington	WA-08-9350	47° 31' 24" N	122° 15' 47" W
48	Rainier Avenue S at S Perry Street	Lake Washington	WA-08-9350	47° 30' 58" N	122° 15' 11" W
49	Rainier Ave. S. at S. Cooper Street	Lake Washington	WA-08-9350	47° 30' 49" N	122° 15' 01" W
56	Seaview Avenue NW at NW 71st Street	Puget Sound - Central	WA-PS-0240	47° 40' 50" N	122° 24' 19" W
57	Seaview Avenue NW at NW 68th Street	Puget Sound - Central	WA-PS-0240	47° 40' 42" N	122° 24' 25" W
59	Seaview Ave. NW at NW 57th Street	Salmon Bay	WA-08-9340	47° 40' 13" N	122° 24' 21" W
60	W Cramer Street at 39th Avenue NW	Salmon Bay	WA-08-9340	47° 40' 04" N	122° 24' 27" W
61	W Raye Street at Logan Avenue W	Elliott Bay	WA-09-0010	47° 38' 35" N	122° 25' 07" W
62	W Ray Street at Logan Avenue W	Elliott Bay	WA-09-0010	47° 38' 31" N	122° 25' 04" W
63	W Ray Street at Logan Avenue W	Elliott Bay	WA-09-0010	47° 38' 24" N	122° 25' 15" W
64	32nd Avenue W at Logan Avenue W	Elliott Bay	WA-09-0010	47° 37' 54" N	122° 23' 58" W
68	W Garfield Street at 17th Avenue W	Elliott Bay	WA-09-0010	47° 37' 59" N	122° 22' 45" W
69	Alaskan Way at Vine Street	Elliott Bay	WA-09-0010	47° 36' 48" N	122° 21' 08" W
70	Alaskan Way at University Street	Elliott Bay	WA-09-0010	47° 36' 21" N	122° 20' 26" W
71	Alaskan Way at Madison Street	Elliott Bay	WA-09-0010	47° 36' 13" N	122° 20' 19" W
72	Alaskan Way S at S Washington Street	Elliott Bay	WA-09-0010	47° 36' 03" N	122° 30' 13" W

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

Outfall Number	Overflow Outfall Location	Receiving Water Body	Water Body ID No.	Latitude (North)	Longitude (West)
78	Harbor Avenue SW at Fairmont Avenue SW	Elliott Bay	WA-09-0010	47° 35' 15" N	122° 22' 38" W
80	Harbor Avenue SW at SW Maryland Place	Elliott Bay	WA-09-0010	47° 35' 36" N	122° 22' 55" W
83	Alki Avenue SW at SW Arkansas Street	Puget Sound - Central	WA-PS-0240	47° 35' 30" N	122° 23' 42" W
85	Alki Avenue SW at Point Place SW	Puget Sound - Central	WA-PS-0240	47° 34' 36" N	122° 25' 12" W
88	SW Beach Drive – N of SW Bruce Street	Puget Sound - Central	WA-PS-0240	47° 33' " N	122° " W
90	SW Beach Drive at Murray Avenue SW	Puget Sound – S-Central	WA-PS-0270	47° 32' 24" N	122° 24' 00" W
91	Fauntleroy Way SW - N of SW Trenton St. in Lincoln Park	Puget Sound – S-Central	WA-PS-0270	47° 31' 32" N	122° 23' 44" W
94	Fauntleroy Avenue SW - N of SW Director Street	Puget Sound – S-Central	WA-PS-0270	47° 31' 25" N	122° 23' 46" W
95	Fauntleroy Avenue SW at SW Brace Pt Drive	Puget Sound – S-Central	WA-PS-0270	47° 31' 14" N	122° 23' 45" W
99	SW Hinds Street at Duwamish River West Waterway	W Waterway of Duwamish River	WA-09-1010	47° 34' 25" N	122° 21' 40" W
107	SW Hinds Street at Alaskan Way S	East Waterway of the Duwamish River	WA-09-1010	47° 34' 25" N	122° 20' 34" W
111	S. Oregon St. at East Duwamish	Duwamish River	WA-09-1010	47° 33' 47" N	122° 20' 43" W
116	S. Brighton Street - E. Duwamish	Duwamish River	WA-09-1010	47° 32' 29" N	122° 19' 55" W
120	Westlake Avenue N at Aurora Avenue N	Lake Union	WA-08-9340	47° 38' 43" N	122° 20' 49" W
121	Westlake Avenue N at Crockett Street	Lake Union	WA-08-9340	47° 38' 17" N	122° 20' 25" W
124	Westlake Avenue N - S of Aloha Street	Lake Union	WA-08-9340	47° 37' 36" N	122° 20' 19" W
127	Fairview Avenue E at Yale Avenue E	Lake Union	WA-08-9340	47° 37' 47" N	122° 19' 52" W
129	Fairview Avenue E at E Newton Street	Lake Union	WA-08-9340	47° 38' 12" N	122° 19' 46" W
130	Fairview Ave. E. @ E. Lynn St.	Lake Union	WA-08-9340	47° 30' 23" N	122° 19' 49" W
131	Fairview Avenue E at Louisa Street	Lake Union	WA-08-9340	47° 38' 32" N	122° 19' 48" W
132	Fairview Avenue E. at E.Roanoke E.	Lake Union	WA-08-9340	47° 38' 36" N	122° 19' 44" W
134	Fairview Avenue E at E Allison Street	Lake Union	WA-08-9340	47° 38' 59" N	122° 19' 28" W

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

Outfall Number	Overflow Outfall Location	Receiving Water Body	Water Body ID No.	Latitude (North)	Longitude (West)
135	Eastlake Avenue E at Portage Bay Place E	Lake Union	WA-08-9340	47° 39' 08" N	122° 19' 16" W
136	Portage Bay Place E at E Allison Street	Lake Union	WA-08-9340	47° 38' 56" N	122° 19' 04" W
138	E. Shelby Street - Portage Bay	Portage Bay	WA-08-9260	47° 38' 49" N	122° 18' 58" W
139	16th Avenue E at Louisa Street	Portage Bay	WA-08-9260	47° 38' 34" N	122° 18' 38" W
140	E Shelby Street at W Park Drive	Portage Bay	WA-08-9260	47° 38' 49" N	122° 18' 34" W
141	Brooklyn Avenue NE at Boat Street	Portage Bay	WA-08-9260	47° 39' 05" N	122° 18' 52" W
144	Latona Avenue NE at NE Northlake Way	Lake Union	WA-08-9340	47° 39' 11" N	122° 19' 32" W
145	N 36th Street at NE Northlake Way	Lake Union	WA-08-9340	47° 39' 00" N	122° 19' 50" W
146	Carr Place N at N Northlake Way	Lake Union	WA-08-9340	47° 38' 50" N	122° 20' 23" W
147	Stone Way N. at Northlake Way	Lake Union	WA-08-9340	47° 38' 53" N	122° 20' 34" W
148	8th Avenue NW at NW 41st Street	Lake Washington - Ship Canal	WA-08-9340	47° 39' 49" N	122° 22' 00" W
150	24th Avenue NW and NW Market Street	Salmon Bay Waterway	WA-08-9340	47° 40' 00" N	122° 23' 17" W
151	24th Avenue NW and NW Market Street	Salmon Bay Waterway	WA-08-9340	47° 40' 01" N	122° 23' 17" W
152	28th Avenue NW and NW Market Street	Salmon Bay Waterway	WA-08-9340	47° 40' 02" N	122° 23' 34" W
161	N.E. 65th Street and 65th Avenue N.E.	Lake Washington	WA-08-9350	47° 40' 38" N	122° 14' 42" W
165	Lake Washington Blvd. at S Alaska Street	Lake Washington	WA-08-9350	47° 33' 38" N	122° 15' 50" W
168	Delridge Avenue SW at SW Myrtle Street	Longfellow Creek	WA-09-1000	47° 32' 21" N	122° 21' 45" W
169	Between 24th and 25th Ave. SW N/O SW Thistle St.	Longfellow Creek	WA-09-1000	47° 31' 45" N	122° 21' 50" W
170	27th Avenue SW at SW Webster Street	Longfellow Creek	WA-09-1000	47° 32' 25" N	122° 21' 36" W
171	Rainier Ave. S at Ithaca Place S	Lake Washington	WA-08-9350	47° 30' 15" N	122° 15' 33" W
174	NW 36th Street at 2nd Ave. NW	Lake Washington - Ship Canal	WA-08-9340	47° 39' 10" N	122° 21' 35" W
175	E Garfield Street at Fairview Avenue E	Lake Union	WA-08-9340	47° 28' 02" N	122° 19' 38" W

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

Figure K: Map of City of Seattle CSOs

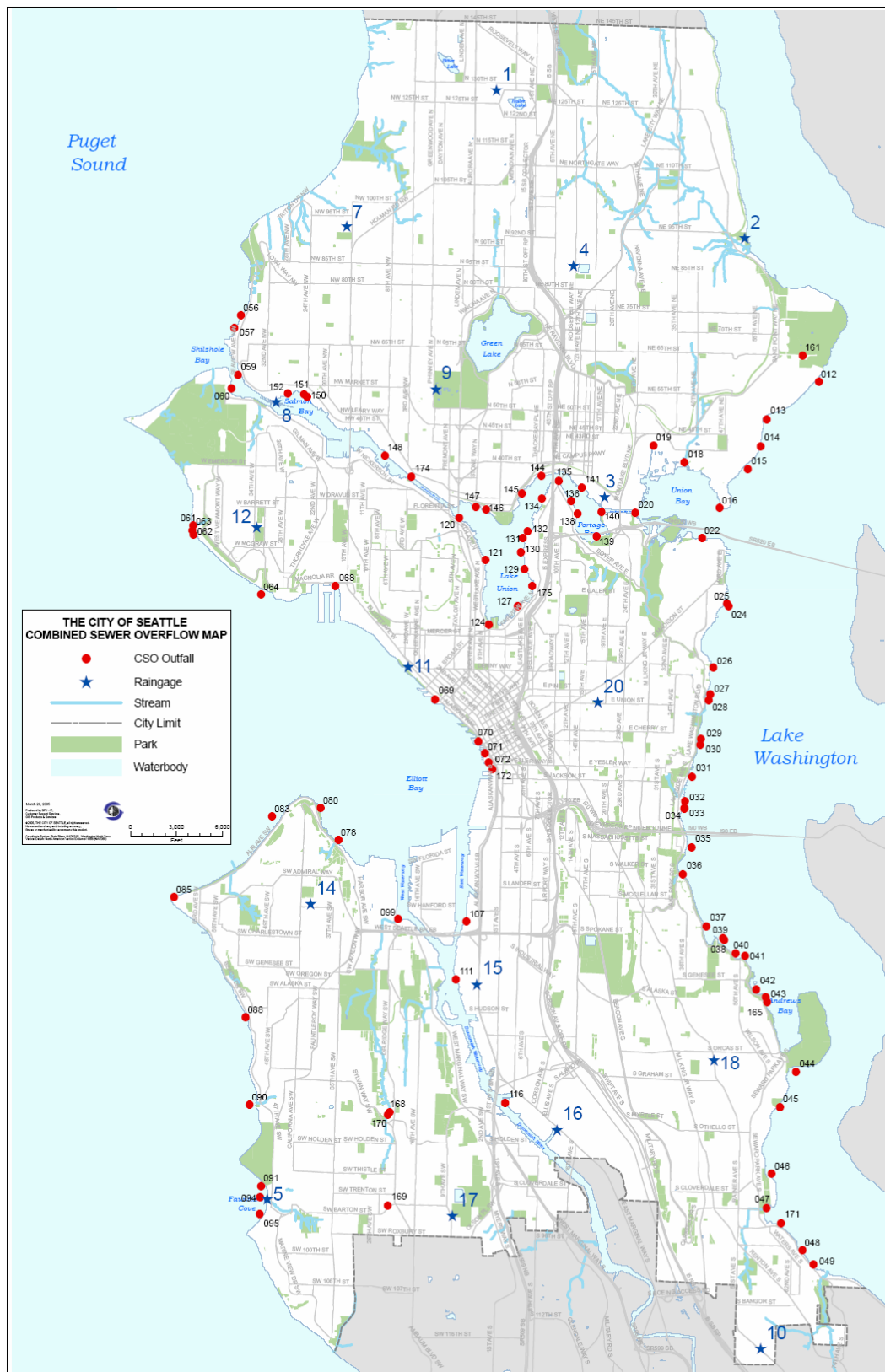


Figure L: Historical Discharge Data (1998-2004)

APR#	TYPE	1998 Overflow Volume (GRT)	1998 Overflow Frequency (#/Yr)	1998 Duration (hrs)	1999 Overflow Volume (GRT)	1999 Overflow Frequency (#/Yr)	1999 Duration (hrs)	2000 Overflow Volume (GRT)	2000 Overflow Frequency (#/Yr)	2000 Duration (hrs)	2001 Overflow Volume (GRT)	2001 Overflow Frequency (#/Yr)	2001 Duration (hrs)	2002 Overflow Volume (GRT)	2002 Overflow Frequency (#/Yr)	2002 Duration (hrs)	2003 Overflow Volume (GRT)	2003 Overflow Frequency (#/Yr)	2003 Duration (hrs)	2004 Overflow Volume (GRT)	2004 Overflow Frequency (#/Yr)	2004 Duration (hrs)	Receiving Waters	
12	PS	6,323,969	21	168	5,095,260	15	141	6,241,113	5	19	4,700,266	12	125	15,296,503	7	71	25,136,945	9	52	52	0	0	0	Salmon Bay
13A	CSD	13,249,565	7	68	14,839,209	11	58	756,798	3	5	8,194,731	9	65	5,634,153	3	26	2,977,589	3	55	3,903,988	3	55	70	Lake Washington
13B	CSD	756,798	N.A.	N.A.	807,300	7	42	611,856	10	41	18,734	2	4	18,734	2	4	0	0	0	5,092,129	1	10	Lake Washington	
15A	CSD	1,159,250	3	36	1,362,802	10	42	24,465	2	4	1,266,676	9	45	4,401,787	4	31	4,758,811	3	43	12,375,364	5	61	Lake Washington	
15B	CSD	1,159,250	3	36	1,362,802	10	42	24,465	2	4	1,266,676	9	45	4,401,787	4	31	4,758,811	3	43	12,375,364	5	61	Lake Washington	
16	PS	0	0	0	0	0	0	0	0	0	5,716,033	2	23	4,887,417	10	150	12,010,022	19	328	0	0	0	Lake Washington	
18A	CSD	178,259	1	5	9,487,347	2	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Union Bay	
18B	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Union Bay	
19	PS	0	0	0	N.A.	N.A.	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Union Bay
20	CSD	2,525,742	5	38	2,017,978	3	35	191,557	1	4	2,649,434	5	38	0	0	0	1,030,165	4	21	N.A.	0	0	0	Portage Bay
20B	CSD	0	0	0	0	0	0	0	0	0	0	0	0	4,000	1	1	4,370,940	4	55	1,755,364	0	0	0	Portage Bay
22	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Union Bay
22B	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Union Bay
24	CSD	0	0	0	N.A.	N.A.	N.A.	0	0	0	1,491,025	4	18	12,620	2	2	3,572,568	2	34	383,264	1	1	1	Lake Washington
25	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
25B	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
26	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	0	0	0	55,470	0	0	2	0	0	0	0	0	0	Lake Washington
26B	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
27	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	98,658	22	42	385,911	19	70	28,004,029	14	340	145,687	9	23	278,425	0	0	0	Lake Washington
29	CSD	26,214	1	7	359,640	11	64	259,708	16	65	6,319,029	19	438	0	0	0	0	0	0	0	0	0	0	Lake Washington
29B	CSD	0	0	0	2,240,786	1	1	407,758	2	3	223,115	9	69	673,619	3	24	5,274,147	14	143	6,697,623	24	4	4	Lake Washington
31	CSD	71,300	1	22	1,291	2	4	7,114	1	4	135,261	12	67	404,988	5	35	4,195,230	30	160	1,602,791	10	150	10	Lake Washington
32A	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
32B	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
33	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
34	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	172,919	2	16	0	0	0	41,300	1	7	19,030	0	0	0	Lake Washington
34A	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
34B	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
35	CSD	32,707	2	10	213,048	5	58	133	1	1	42,242	4	21	0	0	0	2,171,206	0	3	59	0	0	0	Lake Washington
36	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
37	CSD	1,065,931	1	19	76,657	1	N.A.	13,097	1	1	599,562	3	20	0	0	0	13,255	1	7	0	0	0	0	Lake Washington
38	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
39	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
40	CSD	9,043,377	10	112	8,614,769	6	78	1,640,561	4	19	6,222,371	7	53	405,267	5	37	3,630,362	4	37	5,000	1	2	2	Lake Washington
41	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
41A	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
42	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	701	0	3	2,086,862	10	160	27,619,206	16	319	67,385,957	14	525	23,059,312	0	0	0	Lake Washington
43	CSD	1,732,538	7	63	919,612	4	44	278,568	3	14	5,672,370	7	218	12,142,526	3	68	6,685,577	3	15	0	0	0	0	Lake Washington
44	CSD	1,595,846	9	85	595,820	5	56	254,286	4	19	2,431,013	8	83	12,142,526	7	46	6,685,577	6	83	2,923,553	4	40	Lake Washington	
44A	CSD	2,007,084	20	244	8,706,086	14	181	2,007,084	7	38	9,204,619	10	111	26,491,943	2	27	146,457,565	7	166	3,864,504	5	58	Lake Washington	
44B	CSD	11,971,097	9	244	8,706,086	14	181	2,007,084	7	38	9,204,619	10	111	26,491,943	2	27	146,457,565	7	166	3,864,504	5	58	Lake Washington	
45	CSD	253,565	4	44	52,043	4	44	12,570	1	15	47,052,886	27	291	35,275,974	13	205	2,879,458	11	140	676,065	9	96	Lake Washington	
45A	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	58,292	4	254	9,699	2	8	0	0	0	0	0	0	0	Lake Washington
45B	CSD	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0	0	0	0	N.A.	N.A.	0	0	0	30,434	3	15	0	0	0	Lake Washington	
45C	PS	N.A.	3	34	N.A.	3	4	0	0	0	0	0	0	8,500	0	0	1	0	0	0	0	0	0	Lake Washington
46	PS	N.A.	3	34	N.A.	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
46A	PS	N.A.	3	34	N.A.	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
46B	PS	N.A.	3	34	N.A.	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
47	CSD	6,510,019	15	136	4,072,708	12	113	453,067	9	35	6,852,315	10	77	3,906,638	6	53	10,360,197	8	198	1,354,236	4	49	Lake Washington	
47A	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
47B	CSD	2,721,113	3	26	376,928	2	4	29,493	2	2	4,277,643	4	33	114,376	1	2	8,674,111	2	15	12,671,986	1	17	Lake Washington	
47C	CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	505,952	2	35	737,145	1	37	Lake Washington	
48	PS	0	0	0	0	0	0	14,230	2	2	163,280	4	13	0	0	0	0	0	0	1181,92202	1	1	Lake Washington	
48A	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington	
49	CSD	17,068,311	6	78	25,437,001	5	88	1,641,396	1	8	11,781,334	5	58	0	0	0	6,885,568	4	48	620,920	1	6	Lake Washington	
49A	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50A	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50B	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50C	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50D	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50E	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50F	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50G	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50H	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50I	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50J	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50K	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50L	PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Lake Washington
50M	PS	0																						

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[illegible]

Notes:
N.A.: Not Available
PS: Pump Station
CSO: Combined Sewer

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

APPENDIX D - RESPONSE TO COMMENTS**CITY OF SEATTLE RESPONSE TO COMMENTS**

Comments were received from the following interested parties. Ecology response to each of the interested parties follows their comment.

Bonnie Blessings
King County Wastewater Treatment Division
Department of Ecology, Toxic Clean Up Program
City of Seattle
Environmental Protection Agency, Region 10, Seattle
People for Puget Sound

Comment from Bonnie Blessings:

From: bjbless@earthlink.net [<mailto:bjbless@earthlink.net>]
Sent: Friday, September 02, 2005 10:58 AM
To: Miller, Tricia
Subject: Permit No WA-003168-2

Hello.

This comment is in regards to City of Seattle NPDES permit WA-003168-2. I have concerns about the monitoring and control of CSO's related to this permit, as I believe many of the outfalls are situated along waters occupied by Chinook salmon and other salmonids. I witnessed what I believe is a CSO outfall in November a few years back in the Montlake Cut, which occurred during the time period that Adult chinook would be migrating through. I did not see any attempt to monitor the water quality during this event, even though there was someone there filming it. The effluent filled over 1/2 the cut for a long distance. Adult salmon passing through would certainly have been exposed. Another CSO is somewhere near Longfellow Creek I believe. Moreover, Longfellow Creek had several instances of pre-spawn mortality related to stormwater events. There are I'm sure many other places where salmon and CSO's co-occur. Its in the public interest to know if there is any effect whatsoever to our fish. Therefore, monitoring should emphasize areas where salmon migration occurs during the most common CSO events. Moreover, there are opportunities for monitoring physiological responses of salmonids to these events. Metals, pesticides, and EDCs could be monitored during these events if properly planned for, and information made available to the public. It can only serve to make citizens more cautious about what they spill or use on their lawns or send down the drain.

I look forward to learning whether there is a hearing for this particular NPDES, so I can learn more about the process.

I have not been able to contact the contact people regarding reviewing the documents (Sally Perkins and the other people at 425 649-7235 or 425 649-7239) so I really won't be able to take a look at the documents other than what is on-line, which doesn't really give much information.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

ECOLOGY RESPONSE:

The Ecology permit writer has had further email communications with Ms. Blessings and determined that the outfalls in question located in the Montlake Cut was likely the King County CSO outfall #014. The web link to King County's CSO web page was given to Ms. Blessings to provide more information about CSOs.

<http://dnr.metrokc.gov/WTD/cso/page02.htm>.

The City of Seattle's present permit (issuance date April 28, 1998) required the submittal of a Combined Sewer System Characterization report. This report provided information about the characteristics of pollutants that may be found in CSO discharges as discussed in the fact sheet to the draft permit, pg. 10.

Further discharge monitoring requirements will be added to the permit to provide additional information about the nature of the City of Seattle's CSO discharges. See Appendix E: Permit Changes After Public Comment, S2.B., which includes the requirement to complete a *CSO Supplemental Characterization Study*.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

Comment from King County Wastewater Treatment Division:

September 16, 2005

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452

RE: Comments on the Draft NPDES permit for Seattle's CSOs

Dear Water Quality Permit Coordinator:

For King County, the renewal of Seattle's NPDES permit is an opportunity to approach the City and the County combined sewer systems as the interconnected system it is. The County recommends that some changes be made to the standard permit language in order to recognize this reality.

EPA Nine Minimum Control ((MC) requirements are written for the simpler, single owner system. EPA guidance documents recognize, but provide limited help in customizing 9MCs for the more complex situation where one combined system is a satellite to another combined sewer system with different authorities. The County recommends that Nine Minimum Control requirements be reviewed in the context of the whole system, not just Seattle's component.

As one of the 9MCs, Ecology is asking both the City and the County to review their public notification program and see if there is an opportunity to provide more current information. The County recommends that decisions on any changes be coordinated so as to minimize public confusion over two systems.

We also recommend that the permit be more customized to the information in the "Documentation of Compliance with Nine Minimum Controls" report submitted by Seattle June 30, 1999. This report describes Seattle's authorities for stormwater source control, including sewer catch basin maintenance, street sweeping, litter control and the collection of stormwater management fees, but also states that source control "programs are, in large part, implemented in the separated system and not specifically in the combined sewer service areas..." (Pg. 19)

Combined Sewer Overflow (CSO) control project alternatives have typically been developed as stand-alone projects to meet site-specific goals and objectives. We need to recognize that the two agencies are competing for the same capacity to control their CSOs. During present wet seasons, (and year round after Brightwater is built) West Point treatment capacity is fully dedicated to manage flows, including captured CSO, generated in Seattle. To ensure adequate coordination we recommend that the alternative development, and cost/performance curves required by this permit (and future County permits) be based upon an assessment of total system hydraulics, as well as impacts on West Point and/or CSO plant treatment performance.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

The enclosure suggests changes to permit language that might get at these issues. County staff would be willing to meet with you to discuss these comments if Ecology would find that useful. Please feel free to contact Karen Huber, CSO program lead at (206) 684-1246, or Betsy Cooper, NPDES administrator, at (206) 263-3728, with any questions or to set up a meeting. Thank you.

Sincerely,

Donald Theiler
Division Director

The County suggests the following changes (typed in **red** and underlined) to the Seattle NPDES permit language to better address the interconnectedness of the City and County systems:

S4. OPERATION AND MAINTENANCE

D. Prevent Connection of Inflow

The Permittee shall strictly enforce their sewer ordinances to minimize inflow (roof drains, foundation drains, etc.) to the combined sewer system. Separate or partially separated stormwater shall not be discharged to the combined system.

S7. EFFLUENT LIMIT (EPA Requirements for Phase II CSO Permit)

A. Technology-based requirements for CSOs (Nine Minimum Controls)

1. Conduct proper operations and regular maintenance programs.

b. **Inspection and Maintenance of CSS.** The permittee shall inspect and maintain all stormwater systems discharging to the combined system, CSO structures, regulators, pumping stations, and tidegates to ensure that they are in good working condition and adjusted to maximize detention of stormwater, minimize County and City CSOs and prevent tidal inflow. The permittee shall inspect, or cause to be inspected, each CSO regulator structure at an appropriate frequency to ensure no dry weather overflows are occurring. The inspection shall include, but is not limited to, determining the extent of debris and grit buildup, and removing any debris that may constrict flow, cause blockage, transfer debris to the County system, or result in a dry weather overflow. The permittee shall keep records of the inspections. For CSO regulator structures that are inaccessible, the permittee may perform a visual check of the overflow pipe to determine whether or not the CSO is occurring during dry weather flow conditions.

2. **Maximize use of the collection system for storage.** The permittee shall maximize the in-line storage capacity to benefit both City and County CSO control efforts. Discharge of separated or partially separated stormwater to use downstream combined system capacity shall not be allowed.

Note: EPA recommends consideration of:

- **Retard Inflows - By using special gratings or Hydrobrakes (or comparable commercial devices), O&M staff can modify catch basin inlets to restrict the rate at which surface runoff is permitted to**

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

enter the system. Slowing inflow will enable the CSS to transport more flow overall by spreading out the flow over time. Eliminating the direct connection of roof drains and sump pumps to the collection system is also possible where sufficient land area is available for drainage.

- **Localized Upstream Detention** - Using localized detention in appropriate upstream areas could provide effective short-term storage (e.g., upstream parking areas could be used for temporary storage of some storm water during storm events).

(Section 3.2 Combined Sewer Overflows Guidance for Nine Minimum Control Measures, (EPA 832-B-95-003))

- 4. Maximize flow to POTW treatment plant.** The permittee shall operate conveyance system to King County's interceptors and POTW/CSO treatment plants at the maximum transferable flow during wet weather flow conditions/events and deliver all flows to the treatment plants within the constraints of the County's conveyance capacity, treatment plant performance, and plans for CSO control projects. This transfer of flow shall not increase the volume or frequency of County CSOs, cause deterioration of treatment plant performance, or cause or contribute to violations of water and sediment quality standards at County outfalls. The permittee shall keep records to document the constraint analysis.

Note: EPA suggests that the following minimum measures be considered in implementing this control:

- Determine the capacity of the major interceptor(s) and pumping station(s) that deliver flows to the treatment plant. Ensure that the full capacity is available by using the O&M suggestions presented in Chapter 2.
- Analyze existing records to compare flows processed by the plant during wet weather events and dry periods and determine the relationships between performance and flow.
- Compare the current flows with the design capacity of the overall facility, as well as the capacity of individual unit processes. Identify the location of available excess capacity.
- Determine the ability of the facility to operate acceptably at incremental increases in wet weather flows and estimate the effect on the POTW's compliance with the effluent limits in its permit. Increased flows may upset biological processes, for example, and decrease performance for an extended period after the wet weather flows have subsided.
- Determine whether any inoperative or unused treatment facilities on the POTW site can be used to store or treat wet weather flows.
- Develop cost estimates for any planned physical modifications and any additional O&M costs at the treatment plant due to the increased wet weather flow.

(Section 5.1 Combined Sewer Overflows Guidance for Nine Minimum Control Measures, (EPA 832-B-95-003))

- 6. Control solid and floatable materials in CSOs.** The permittee shall implement measures to control solid and floatable materials in City and County CSOs.

Note: EPA reports studies indicating that 95% of all floatables originate as street litter.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

(Section 7.5 Combined Sewer Overflows Guidance for Nine Minimum Control Measures, (EPA 832-B-95-003))

7. Develop and implement pollution prevention program. The permittee shall implement a pollution prevention program focused on reducing the impact of City and County CSOs on receiving waters. The permittee shall keep records to document pollution prevention implementation activities.

Note: EPA recommend implementing street sweeping, public education, solid waste collection and recycling, control of illegal dumping – all roles described by Seattle in their “Documentation of Compliance with Nine Minimum Controls” report. (Section 8 Combined Sewer Overflows Guidance for Nine Minimum Control Measures, (EPA 832-B-95-003))

S8. LONG-TERM CONTROL PLAN (EPA Requirements for Phase I EPA Permit)

D. CSO Control Alternatives For all CSOs for which control objectives (an average of one untreated discharge per year per outfall) have not yet been met, the permittee shall provide the following documentation to establish the new alternative for investigation and/or design. The report requirement shall be included in the Reduction Plan Amendment submittal March 31, 2010.

1. Development of CSO Control Alternatives. The permittee shall develop a range of CSO control alternatives that would be necessary to achieve an average of 1 untreated CSO event per year per outfall. Alternatives considered shall include reduction of inflow and infiltration.

2. Evaluation of CSO Control Alternatives. The permittee shall evaluate each of the alternatives developed to select the CSO controls that will ensure compliance with Clean Water Act (CWA) requirements and Washington State regulations (WAC173-245). The evaluation shall assess hydraulic and performance impacts on City and County conveyance and treatment facilities.

3. Cost/Performance Considerations. The permittee shall develop and submit cost/performance curves that demonstrate the relationship among the set of CSO control alternatives that correspond to the CSO alternatives identified in S8.D.1, above. Cost and performance shall be assessed for the City and County system as a whole.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

ECOLOGY RESPONSE:

Ecology recognizes the hydraulic connectedness of the City's and County's sewer system and readily acknowledges the many challenges that exist with regard to CSO control for the overall sewer system (including both the County and City). Both the County and the City are committed [through their CSO reduction plan/Long Term Control Plan (LTCP)] to implementing costly projects to reduce CSO discharges. Ecology understands the need for assurance to both the City and County that each entity will not initiate projects that will negatively impact CSO control for the other entity. Ecology has had discussions with both entities which have highlighted the need for a formal arrangement for requiring communication, cooperation, and coordination between the City and County with regard to CSO control.

The current operating agreement, which is in effect from 1961 to 2036, requires King County to accept all of the City's sewerage. This operating agreement does not address NPDES permit requirements and the complexities of CSO control (compliance with nine minimum controls and CSO reduction plans/LTCP) in the overall sewer system. Ecology does not feel that the individual NPDES waste discharge permits are the appropriate documents in which to incorporate and/or clarify the responsibilities of City and County. If necessary, Ecology will look for other means, such as "Orange Book" revisions or the issuance of an Administrative Order(s) to further address the concerns of the County and the City.

Ecology has concluded that many of the permit language changes requested by the County would not be enforceable. Specifically, Ecology can not impose permit conditions related to the County in the City's permit. Therefore, requested language changes to include the word "County" were not accepted. Ecology has incorporated the following changes into the City's permit as requested by King County in their comments on the draft permit. All other requested changes were rejected due to the limited enforceability of proposed language.

- The inspection shall include, but is not limited to, determining the extent of debris and grit buildup, and removing any debris or transfer of debris to the County system that may constrict flow, cause blockage, or result in a dry weather overflow.
- Development of CSO Control Alternatives. The permittee shall develop a range of CSO control alternatives that would be necessary to achieve an average of one untreated CSO event per year per outfall. Alternatives considered shall include reduction of inflow and infiltration.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

Comment from Department of Ecology, Toxic Clean Up Program:

9/15/05

TO: Tricia Miller, NWRO WQ

FROM: Rick Huey, NWRO TCP
Lower Duwamish Waterway Project Manager

SUBJECT: Comments on City of Seattle CSO NPDES Permit No. WA-003168-2

Two CSOs addressed by this permit are within the Lower Duwamish Waterway Sediment Site. The CSOs are 111 S. Oregon St. at E. Duwamish, and 116 S. Brighton St. at E. Duwamish.

TCP requests that the follow information be included in this permit:

1) A Description of the Lower Duwamish Waterway Sediment Site

Sediments in the 5.5 river-mile long Lower Duwamish Waterway are currently being investigated and cleaned up under MTCA, RCRA, and Superfund authorities. The waterway is listed as a Superfund and MTCA site, and is 303(d) listed based on water quality exceedences in sediments. A wide range of contaminants are present, with polychlorinated biphenyls and polycyclic aromatic hydrocarbons as major concerns. Ecology and EPA are implementing a two-phase Remedial Investigation/Feasibility Study with the Lower Duwamish Waterway Group (City of Seattle, Boeing, Port of Seattle, and King County). Phase 1 has identified 7 early action cleanup areas, and data gaps to fill during Phase 2. Phase 2 (to be completed in approximately 2006) will determine if further cleanups are necessary beyond the 7 early action areas. For further information, see: <http://yosemite.epa.gov/r10/cleanup.nsf/sites/lduwamish>

2) 111 S. Oregon St. at E. Duwamish

CSO 111 represents 8 City of Seattle CSOs (111A-H) that discharge from this outfall. A King Co. CSO (Hanford #1), also discharges from this outfall (Lower Duwamish Waterway Source Control Action Plan for the Duwamish/Diagonal Way Early Action Cleanup. December 2004. p. 12).

King Co., as part of the Elliott Bay Duwamish Restoration Panel, managed the cleanup of approximately 7 acres of contaminated sediments adjacent to this outfall in 2003/4. A follow-up sediment cleanup action was completed in 2005.

Post-sediment cleanup monitoring will be implemented by King Co. for the Duwamish/Diagonal sediment cleanup for a minimum of 5 years. At the end of post-sediment cleanup monitoring, Ecology will determine if continued sediment monitoring should become a requirement of the NPDES permit.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

3) 116 S. Brighton St. at E. Duwamish

If Phase 2 of the Lower Duwamish Waterway Remedial Investigation work (to be completed in approximately 2006) determines that cleanup of sediments in the area of CSO 116 is *not* required, then the City of Seattle shall propose and implement a monitoring plan in order to determine if any CSO discharge from 116 is exceeding WAC 173- 204 Sediment Management Standards. The plan shall include provisions for submitting data to Ecology in the Sediment Quality Database (SEDQUAL) templates.

TCP understands that 116 has not had an overflow event for 4 years. We recommend that if the area adjacent to 116 is *not* designated as a sediment cleanup area (based on Phase 2 Remedial Investigation work), then baseline sampling near the CSO should be completed. If a CSO event does occur, then post-event sediment sampling should be implemented to determine if sediment impacts have occurred due to the event.

ECOLOGY RESPONSE:

TCP is in agreement with the permit writer that the bullet items 1, 2, and 3 most appropriately belong in the fact sheet. These items are amended to the fact sheet by inclusion into the response to comments. Water Quality will continue to work with TCP to address source control issues at the above-mentioned sites.

Additional sediment monitoring requirements were added to the permit to further address concerns regarding sediment contamination as a result of CSO discharges. Appendix E: Permit Changes after Public Comment, S9., has been added to the permit to address sediment concerns.

Ecology may require the City, by administrative order, to perform additional sediment testing after review of the Sediment Survey report.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

Comment from City of Seattle:

City of Seattle

September 12, 2005

Department of Ecology
Northwest Regional Office
3190 160th Avenue, SE
Bellevue, WA 98008-5452

Attention: Tricia Miller

TRANSMITTED BY FACSIMILE—HARD COPY TO FOLLOW

RE: NPDES No. WA-003168-2 Draft Permit

Thank you for the opportunity to review the Draft NPDES Permit No. WA 003168-2. The City has prepared the following written comments.

1. The City requests the First Submittal Date for the Public Feasibility Notification Study – DRAFT be changed to September 30, 2007. As this would be a new, unplanned project for the City of Seattle, we must first submit a request to City Council to create a new project. A schedule is attached showing the soonest that the City could commence a new project.
2. The City requests the First Submittal Date for the Public Feasibility Notification Study – FINAL be changed to September 30, 2008. This change is requested to permit adequate time to incorporate comments on the DRAFT into a FINAL document.
3. The City requests outfall NPDES No. 172 be removed from the permit. Outfall NPDES No. 172 has been plugged and the overflows from this structure has been rerouted to outfall NPDES No. 71. The overflow structure has been renamed NPDES 71B.

Please contact Jason Sharpley at 206-615-0030 with questions concerning these comments.

Sincerely,

Sally Marquis, Director
Resource Planning Division

ECOLOGY RESPONSE:

- Item 1, Submittal data for the Feasibility Notification Study – DRAFT was changed from September 30, 2006, to September 30, 2007, due to budgetary constraints as presented by the City in an attachment submitted with their comments.
- Item 2, Submittal data for the Feasibility Notification Study – FINAL was changed from September 30, 2007, to September 30, 2008, due to budgetary constraints.
- Item 3, change is accepted and permit will be modified.

FACILITY NAME: CITY OF SEATTLE COMBINED SEWER OVERFLOW

Comment from Environmental Protection Agency:

September 16, 2005

Ms. Karen Burgess
Water Quality Permits
Department of Ecology Northwest Regional Office
3190 - 160th Avenue SE
Bellevue, WA 98008-5452

Re: City of Seattle Combined Sewer Overflow Outfalls
NPDES Permit No.: WA-003168-2

Dear Ms. Burgess:

Thank you for the opportunity to review the draft NPDES permit for the City of Seattle's (City's) Combined Sewer Overflow (CSO) outfalls. Here are our comments for your consideration.

1. The City is using a "presumption" approach for their CSO control measures to meet water quality-based requirements of the Clean Water Act (CWA). As such, in accordance with the CSO Control Policy (Policy), the City's planned CSO control measures are presumed to provide an adequate level of control to meet the water quality-based requirements of the CWA, provided that the permitting authority (*i.e.*, Ecology) determines that such a presumption is "reasonable in light of the data and analysis conducted in the characterization, monitoring, and modeling of the system and the consideration of sensitive areas." *See* CSO Control Policy, 59 Fed. Reg. 18688, 18692. The fact sheet, however, does not explain the basis for which Ecology believes that upon completion of the CSO control measures, the water quality standards and designated uses will be met using the presumption approach. Our concerns related to this include the following:

- Characterization of the system requires adequate determination of the impacts of the CSOs on the receiving waters and their designated uses. This characterization was required during development of the CSO control measures. This information is necessary to evaluate the expected effectiveness of the long-term CSO controls to meet the water quality standards. It is not clear from the fact sheet whether the City has met this requirement of the Policy, nor is there a permit requirement for the characterization. If this characterization is lacking, Ecology should consider including additional characterization permit requirements to investigate the impacts of the CSOs on the receiving waters.
- The fact sheet does not identify sensitive areas in the receiving waters, such as waters with threatened or endangered species and their habitat, waters with primary contact recreation and shellfish beds. EPA expects a permittee's CSO Long-term Control Plan (LTCP) to give the highest priority to controlling overflows to sensitive areas. It is unclear from the fact sheet if these sensitive areas have been identified, and if the City has given priority to eliminating, relocating or treatment of overflows from sensitive areas. If sensitive areas have not been addressed as part of the LTCP, we recommend a permit requirement to assess the feasibility of eliminating or relocating CSO outfalls to sensitive areas.

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- Many of the receiving waters are impaired, including Elliot Bay, Lake Washington and Longfellow Creek for fecal coliform. The contribution of CSO loads should be addressed during development of these TMDLs.
- There are several sediment 303(d) listings in the water bodies to which the City discharges. These are not documented in the fact sheet. Seattle CSOs have been identified as sources of sediment contamination at the Lower Duwamish Waterway Superfund site. Have the impacts of CSOs on the impaired sediments been taken into consideration in the CSO control measures and development of this permit? Due to this impact, Ecology should consider monitoring of CSO outfalls for contaminants that are known to exceed Ecology's contaminant screening level (CSL) or sediment quality standard (SQS).

Note that upon completion of the CSO measures, any discharges remaining after implementation of the CSO controls must not interfere with the attainment of water quality standards. Using the presumption approach does not shield a permittee from the possibility that additional controls might eventually be necessary to attain water quality standards.

2. The permit has no required receiving water monitoring requirements, nor does the fact sheet present available water quality data on the receiving waters. If there are not adequate receiving water monitoring data, Ecology should include receiving water quality monitoring requirements in the permit. This information can then be used to evaluate the need for water quality-based effluent limits once the CSO control measures are implemented. In addition, if Ecology is considering a water quality standard review for the CSO-receiving waters, sufficient data must be available.

3. The monitoring requirements should include reporting of the number of CSO events per month for each outfall. The permit requires that the Permittee "monitor outfalls with operating automatic flow monitoring equipment." Therefore, the permit should identify which outfalls have operating automatic flow monitoring equipment.

4. Public notification is of concern particularly at beach and recreation areas directly or indirectly affected by CSOs. How does the City currently notify the public of the actual occurrences of CSOs?

5. It appears that the water quality-based requirements for CSOs are not applicable to any of the CSO outfalls during the permit cycle. On page 19 of the permit, the limits apply to "controlled CSOs", yet the footnote at the bottom of page 19 states that there are no controlled CSOs during this permit cycle. Because compliance with the water quality-based limits extends beyond the expiration date of the permit, Ecology should use a different enforceable mechanism to impose the LTCP obligations. Note that compliance schedules may only be used as Washington's water quality standards allow.

6. The water quality-based effluent limits for controlled CSOs in Section S7 (page 19) of the permit should be revised as follows:

B. Water quality-based requirements for CSOs (~~for controlled CSOs~~)

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The permittee shall not discharge any pollutant at a level that causes or contributes to an in-stream excursion above numeric or narrative criteria adopted as part of Washington State water quality standards (WAC173-201A). ~~for CSO outfalls which are controlled.~~

It's unclear from the draft permit language above, whether Ecology is referring to specific water quality standards for controlled CSO outfalls. Please note that the EPA-approved water quality standards for Washington do not include specific water quality standards for controlled CSO outfalls. The City's LTCP needs to integrate water quality standards. Any remaining discharges once the LTCP has been implemented must not interfere with the attainment of the water quality standards.

7. The LTCP requirements in Section S8 (page 19) of the permit should be revised as follows:

S8. LONG-TERM CONTROL PLAN (EPA Requirements for Phase I EPA Permit)

The permittee shall further develop ~~as requested~~ the following elements of EPA's long-term control plan to be included....

8. One of the nine minimum controls of the CSO Policy is maximization of flow to the wastewater treatment plant. Because the City is not responsible for operation of the wastewater treatment plants, this control impacts King County's collection system and NPDES permits. Ecology should consider whether additional permit language is needed to prevent deleterious impacts of this control on the King County collection and treatment system. Did the City coordinate with the County in conducting the hydraulic analysis for the CSO control measures?

If you have any questions regarding these comments, please contact Susan Poulsom of my staff at (206) 553-6258 or at poulsom.susan@epa.gov.

Sincerely,

/s/ Susan Poulsom for

Michael J. Lidgard
Manager
NPDES Permits Unit

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ECOLOGY RESPONSE:

1. Data to support “presumptive approach” is as follows:

Characterization

City submitted a characterization report as required in the previous permit (issuance date April 28, 1998), refer to fact sheet, pg.10. A requirement for additional characterization has been added to the permit, refer to Appendix E: Permit Changes after Public Comment.

Sensitive Areas

The Final Environmental Impact Statement (FEIS) submitted with the 2001 CSO Reduction Plan Amendment (pg. 2-6 and 2-7) explains the City’s consideration of sensitive areas in the development of the CSO reduction plans.

Impaired Waterbodies, TMDL

All potential point and non-point sources of pollution will be taken into consideration when TMDLs are developed for the impaired waterbodies to which the City discharges.

Sediment 303d listings

The following table includes the pollutants in the sediment on the 303d list for the Duwamish River. The table below includes listings from the approved 1998 list and the proposed 2004 list.

<i>WRIA</i>	<i>Waterbody Name</i>	<i>Grid Cell Number or Twp-Rg-Sec</i>	<i>Combined Parameters</i>	<i>Basis</i>
9	DUWAMISH WATERWAY AND RIVER	23N-04E-04	N-nitrosodiphenylamine 1,4-Dichlorobenzene 1,2-Dichlorobenzene Hexachlorobenzene Total PCBs Dibenz(a,h)anthracene 1,2,4-Trichlorobenzene Butylbenzyl phthalate Sediment Bioassay Hexachlorobutadiene	Data from the Dept. of Ecology SEDQUAL database (stations H=LODRIV98!DR257; M=LODRIV98!DR294; L=LODRIV98!DR295) show the average of 3 samples exceeds the Sediment Management Standards CSL chemical criterion on 9/15/1998.
9	DUWAMISH WATERWAY AND RIVER	24N-04E-18	4-Methylphenol Total PCBs	Data from the Dept. of Ecology SEDQUAL database (stations H=HIRIPH2!K-10; M=HIRIPH2!K-03; L=HIRIPH2!K-04) show the average of 3 samples exceeds the Sediment Management Standards CSL chemical criterion on 10/14/1991. DR31 - Duwamish/Diagonal CSO. CERCLA-NRDA. Dredged.
9	DUWAMISH WATERWAY AND RIVER	24N-04E-29	1,2-Dichlorobenzene; 1,4-Dichlorobenzene Total PCBs Phthalate Hexachlorobutadiene 1,2,4- Trichlorobenzene Phenol N- nitrosodiphenylamine Fluoranthene	Data from the Dept. of Ecology SEDQUAL database (stations H=LODRIV98!DR17; 1M=LODRIV98!DR115; L=LODRIV98!DR140) show the average of 3 samples exceed the Sediment Management Standards CSL chemical criterion on 9/23/1998.
9	DUWAMISH WATERWAY AND RIVER	24N-04E-33	4-Methylphenol Total PCBs	Data from the Dept. of Ecology SEDQUAL database (stations H=HIRIPH2!K-05; M=HIRIPH2!K-05; L=HIRIPH2!K-05) show the average of 3 samples exceeds the Sediment Management Standards CSL chemical criterion on 10/14/1991. Boeing Plant 2. RCRA. Remedial Investigation.

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There are some sediment listings for Elliott Bay, but further analysis is needed to determine if those are in the vicinity of the City's outfalls.

To further address concerns regarding sediment contamination as a result of CSO discharges, additional sediment monitoring requirements were added to the permit. Appendix E: Permit Changes after Public Comment, S9., has been added to the permit to address sediment concerns.

2. Receiving Water Monitoring and Water Quality Standards (WQS) Review

The City provided some additional information regarding receiving water monitoring, refer to Appendix F. The State may not pursue review or changes to the State WQS until after control is achieved and only if compliance with the WQS is found to be unattainable after control efforts are completed.

3. Monitoring Requirements

All of the City's CSO outfalls are equipped with a flow meter to measure the total volume of combined sewerage discharged. A wording change was made to the permit to indicate that flow monitoring is required at all permitted outfalls. Flow, frequency of discharges and other information is provided to the Department in the monthly Discharge Monitoring Report as well as in the Annual CSO Report.

4. Public Notification

The current notification procedure used jointly by the County and City is to have the outfall identified with a sign. The phone number is provided for the public to inquire about additional information. The permit requires the City to study improved methods of communicating CSO events to the public in a timely manner. Refer to the submittal requirement S7.A.8. Public Notification Feasibility Study.

5. Enforcement Mechanism for LTCP

Ecology's combined sewer overflow regulation requires the submittal of a CSO reduction plan amendment with each permit renewal application [WAC 173-245-090(2)]. The periodic submittal requirement recognizes the phase approach that must be taken by communities with a large number of CSO outfalls such as the City of Seattle. Compliance is enforced on a 5-year permit cycle basis within the framework of the approved CSO Reduction Plan/LTCP.

Ecology will consider the need to issue an administrative order to further enforce implementation of the LTCP.

6. Water Quality-based limit

After extensive discussions between EPA and Ecology, it was decided that the State's standard wording (permit boilerplate language) for CSO permits as shown in S1.A. is sufficient to enforce compliance with the State's Water Quality Standards. S7.B. was removed from the permit because it was found to be redundant and unnecessary to enforce compliance with the State's Water Quality

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Standards. All the other requirements of S7.B. were moved to S5.E. The requirement for reporting and compliance with the State's CSO performance standard was more appropriately placed under the State's requirements for CSOs. These changes do not impact or change, in anyway, the submittal requirements of the permit for the City.

7. Permit changed as requested.
8. Refer to response to King County's comments.

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Comment from People for Puget Sound:

Dear Ms. Miller and Ms. Burgess,

Thank you for the opportunity to comment on the draft *City of Seattle's Combined Sewer Overflow (CSO) permit (NPDES Permit WA 003168-2)* dated August 15, 2005.

People For Puget Sound is a nonprofit, citizens' organization whose mission is to protect and restore Puget Sound and the Northwest Straits, including a specific goal to protect and restore the 2,000 miles of Puget Sound shoreline by 2015. We focus on water quality and habitat, advocating that the State of Washington and its counties and cities devote more resources to protecting and restoring the Sound's health.

The City of Seattle has been a strong partner in the effort to reduce contaminants in Combined Sewer Overflows such as mercury and phthalates. Toxic chemicals in water and in sediment, however, are not being adequately addressed in this draft permit.

Washington sediment standards are recognized as water quality standards and thus sediment quality should be fully addressed where impacted waterbodies relate to CSOs regulated under this NPDES permit. Although mentioned in the introduction section of the Fact Sheet, sediment quality is not treated as an important part of the permit (see our specific comments below).

Overall, we have found that sediment quality, especially for areas that are impaired, is not appropriately addressed in any of the NPDES permits that we have reviewed in the past several years. It does not appear that consideration of sediment quality is an integral part of the NPDES permit writing process. To raise its significance, we suggest that sediment quality be added to a permit checklist (or permit writers guide).

We applaud the City of Seattle in its effort to increase efficiencies within the existing CSO infrastructure in order to reduce overflows. People For Puget Sound strongly supports treatment and or alternative drainage methods (such as green roofs, bioswales, sediment traps, etc.) for combined flows rather than the construction of more large detention facilities. These facilities cost millions of dollars and do not guarantee zero overflows of mixed sanitary and storm water. Puget Sound and our lakes and rivers continue to receive toxic chemicals and other pollutants at levels that impact the food web as well as habitat quality.

Our specific comments follow:

Permit

- 1. Baseline Report (page 4).** People For Puget Sound requests that the baseline CSO Characterization report be submitted by March 2007. This is information that should have been submitted years ago and it is unreasonable to put this off to 2010.
- 2. Monitoring (page 10).** This draft permit should include monitoring for toxic contaminants as well as conventional pollutants in addition to flow and frequency. The Phase I Stormwater Permit (due in March 2006) will require water quality and toxicity monitoring and this permit should be consistent with that permit for the City of Seattle.

3. **Biological monitoring.** We strongly recommend that the Department of Ecology include requirements for complete biological monitoring in the receiving waters for the outfalls from the Seattle facilities, including those along the Duwamish River. Given that in the “Antidegradation” section of the Fact Sheet, the Department of Ecology states that they are unable to determine if the receiving waters (and we would include sediment in this analysis) are higher or lower than the designated classification criteria, clearly habitat impairment and biological data are needed for these locations.
4. **Endangered Species.** This permit and fact sheets do not address the threatened Chinook salmon and other species that may be adversely impacted by the discharges. What are the results of Section 7 consultations for this permit?
5. **Clarity of treatment timing of overflows.** It is not clear if the material that overflows at each outfall during a storm is “first flush” stormwater or less contaminated material – and if methods have been instituted to reduce the amount of sewer wastewater in the overflow. Does the system detain all of the stormwater, including the “first flush” flows, or does it divert “first flows” to West Point prior to detention? Are there mechanisms in place to divert the most egregious industrial or sanitary waste to West Point?
6. **Handling of nontreated overflows.** Is there a mechanism in place for the overflow of untreated flows to primarily consist of less polluted material - that is, later storm flows and/or material that has already undergone some settling? Removal of sediment is necessary to reduce contamination of our waterbodies as toxic pollutants have not been removed from sources into the CSO system.
7. **Public notification of overflows and calculation method of number of gallons (page 18).** People For Puget Sound applauds the Department of Ecology for including a provision for the requirement of public notification system and for including public participation in the development of the plan.
8. **CSO outfall identification (page 18).** Given the human health effects from CSO overflows, all of the CSO outfalls that are exposed during low tide should be clearly marked for the public. One option would be to paint the outfall structure red and to incorporate a large sign so that boaters and other recreational users can avoid that area during overflow periods.
9. **Sediment monitoring (page 18).** The outfalls regulated by this permit contribute contaminants to the sediments of Puget Sound and our lakes and rivers. The permit should require a monitoring plan for all of the outfalls along the Duwamish River and other areas in Elliott Bay and freshwater systems. These monitoring plans should be related to the outfalls themselves, not just focused (as in the case of the Duwamish/Diagonal) on whether a specific sediment cap will be recontaminated. Phthalates and other contaminants of concern such as mercury and flame retardants should be included in these monitoring plans. The requirement (#9) should include the minimum contaminants to be monitored and a monitoring schedule. In the draft permit

the language is too undefined: "The permittee shall regularly monitor CSO outfalls to characterize CSO impacts and the efficacy of CSO controls."

10. Water Quality-based Requirements...(page 19). This section should also include sediment excursions as part of state sediment standards (WAC 173-204).

11. Post Construction Compliance Monitoring Plan (Fact Sheet page 11 and permit page 19). It is unacceptable that the City proposes to study only a few CSOs. A comprehensive assessment of all CSOs that have overflowed in the past five years is warranted due to the toxic contamination that continues to enter Puget Sound, the Duwamish, and fresh water systems. Further, this plan should be submitted to the Department of Ecology by June 1, 2006. This plan involves information that should have been collected years ago (except for the new outfalls).

Fact Sheet

12. Inspection Report (page 5) and Inspections. Given the importance of inspections, People For Puget Sound is concerned that the Inspection Report (from inspections conducted February through March 2005) has not been issued and the results are not included in the Fact Sheet. How can a report based on information collected 5 months ago not be included?

13. Dry Weather Flows (page 5). Why are dry weather discharges occurring from the city's CSOs given technology improvements? These flows (2 events totaling an estimated 177,747 gallons in January-May 2005, for example) are prohibited and therefore should be investigated. The Fact Sheet should a) explain why these violations occurred, b) indicate what enforcement action the Department Ecology took and c) indicate corrective actions.

14. Annual CSO Report (page 7). The Fact Sheet states that the City did not comply with permit requirements for the annual report and lacks 1) a comparison to a baseline and 2) action plans for the coming year. A lack of baseline data might be expected for the CSO upgrades that were constructed in 2004, but not for older structures and inline flow monitors were installed in all CSO sites by 2001. What action did the Department of Ecology take for compliance violations?

15. CSS Characterization (page 10 and permit page 19). The conclusion of the CSO report that only zinc and copper "have the potential to exceed WQS" is incorrect given the impaired sediment quality observed at Seattle CSO outfall locations. To state that sediment impairments are due to historic or other sources is surprising given the overwhelming evidence to the contrary for several CSOs being investigated in the Duwamish Superfund Area. The Department of Ecology should not accept these conclusions and should require a new and complete study (within a short time frame) of the CSO impacts on sediments in our waterbodies. Clearly better sampling is needed.

16. Wastewater characterization. The Fact Sheet states no water or sediment data have been required, nor provided by the City, for the CSO discharges. Providing information

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about pollutants typically found in CSOs from other locations is completely unacceptable. The Department of Ecology should require complete chemical characterization of Seattle CSOs as part of the draft permit.

17. Proposed Permit Limitations Section (page 12 ff). This section almost completely lacks consideration of sediment standards and sediment impacts, which is one of the major consequences of CSO discharges. Each of the subsections should refer to sediments, for example. Table H completely omits all of the sediment impairments (both 1998 and 2002/2004). The “Sediment Quality” subsection (page 18) is inaccurate in that several CSOs have been shown to have sediment impacts along the Duwamish or Elliott Bay as reported in published documents. An order to require demonstration of nonpollution should be issued as part of this draft permit process.

Other

18. Incentives for removing clean flows from the CSO system. People For Puget Sound requests that the Department of Ecology require that the City of Seattle create an incentive program to remove flows from the combined system, such as clean roof water. Not only would this reduce overflow potential, it would help reconnect clean fresh water to our waterbodies.

19. Flow rather than pollution focus. Overall, the focus by the City and the Department of Ecology (and King County) is on reduction of flows rather than on reduction of pollutants to Puget Sound. The first flows within a storm carry the highest concentrations of pollution. The system should be designed to divert that water without further mixing by later clean water from a storm or to remove sediment and pollutants while allowing cleaner later flows to bypass to the outfall, if an overflow is to occur. Storage tanks and facilities do not separate out the dirtier flows from the cleaner flows, but instead mixes them.

Puget Sound, Elliott Bay, the Duwamish River, and the Ship Canal remain impaired. Specific contaminants discharged from Seattle’s facilities are contributing to these impairments and we look to the Department of Ecology, US Environmental Protection Agency and the City to reverse the impacts from the facilities regulated under this NPDES permit. We look forward to working with you on reversing these problems. If you have any questions, please feel free to call me at (206) 382-7007.

Sincerely,

Heather Trim
Urban Bays Project Coordinator

ECOLOGY RESPONSE:

Permit

1. **Baseline Report (page 4).** People For Puget Sound requests that the baseline CSO Characterization report be submitted by March 2007. This is information that should have been submitted years ago, and it is unreasonable to put this off to 2010.

To provide some background, the requirement to have established a “baseline” comes from 173-245 WAC where the baseline is defined as follows: “Baseline annual CSO volume and frequency” means the annual CSO volume and frequency that is estimated to occur based upon the existing sewer system and the historical rainfall record. 173-245-040 (2)(a) requires municipalities to complete a field assessment and mathematical modeling study to establish each CSO's location, baseline annual frequency, and baseline annual volume. WAC 173-090 (1)(a) details the requirements for the annual CSO discharge report. The report must indicate whether a CSO site or group of sites has increased over the baseline annual condition.

The City of Seattle’s early modeling of their combined sewer system (CSS) provided some information on baseline volumes and frequency. However, since that time the City has installed an extensive flow monitoring system. Since 2001, all the outfalls are monitoring with flow measurement devices. The Department feels that discharge data from the monitoring system along with historical rainfall data can be used to better develop baseline volume and frequencies for the purpose of comparison to future discharges.

Taking into consideration, the relative importance of this information and other important permit reporting requirements imposed by the Department, the Department feels that a submittal date of 2010 is reasonable and acceptable.

2. **Monitoring (page 10).** This draft permit should include monitoring for toxic contaminants as well as conventional pollutants in addition to flow and frequency. The Phase I Stormwater Permit (due in March 2006) will require water quality and toxicity monitoring, and this permit should be consistent with that permit for the City of Seattle.

Further discharge monitoring requirements will be added to the permit to provide additional information about the nature of the City of Seattle’s CSO discharges. See Appendix E; Permit Changes After Public Comment, S2.B. includes the requirement to complete a *CSO Supplemental Characterization Study*.

3. **Biological monitoring.** We strongly recommend that the Department of Ecology include requirements for complete biological monitoring in the receiving waters for the outfalls from the Seattle facilities, including those along the Duwamish River. Given that in the “Antidegradation” section of the Fact Sheet, the Department of Ecology states that they are unable to determine if the receiving waters (and we would include sediment in this analysis) are higher or lower than the designated classification criteria, clearly habitat impairment and biological data are needed for these locations.

The Department typically would consider requiring biological monitoring only for discharges that are large and continuous. In addition, other considerations would be taken into account, such as sensitivity of the receiving water. Biological monitoring is very expensive to implement and sometimes meaningful conclusions can not be drawn from the results.

Some receiving water quality data exists for many of the waterbodies to which the City of Seattle discharges. Ecology will evaluate the report submittal for discharge and sediment monitoring required during this permit cycle before determining if additional receiving water monitoring is required. Refer to Appendix G, Water and Sediment Monitoring in Seattle Receiving Water Bodies, prepared by the City of Seattle.

4. **Endangered Species.** This permit and fact sheets do not address the threatened Chinook salmon and other species that may be adversely impacted by the discharges. What are the results of Section 7 consultations for this permit?

Under a Memorandum of Agreement (MOA) between EPA and the Department of Ecology, NPDES permits are not subject to the State Environmental Review Process (SERP) which may include section 7 consultation under the Endangered Species Act (ESA). The City will be submitting facility plans for CSO-related construction projects as identified in their 2001 CSO Reduction Plan Amendment. These projects will be subject to SERP and may be subject to a section 7 consultation under the ESA.

5. **Clarity of treatment timing of overflows.** It is not clear if the material that overflows at each outfall during a storm is “first flush” stormwater or less contaminated material and if methods have been instituted to reduce the amount of sewer wastewater in the overflow. Does the system detain all of the stormwater, including the “first flush” flows, or does it divert “first flows” to West Point prior to detention? Are there mechanisms in place to divert the most egregious industrial or sanitary waste to West Point?

CSO flows are conveyed to King County, Regional Wastewater Service Provider, for conveyance and treatment at the Regional Wastewater Treatment Facility prior to flows filling City owned and operated CSO storage facilities. During heavy rain events, it is anticipated that the first flush flows may be conveyed to the King County Conveyance infrastructure, for conveyance to and treatment at the Regional Wastewater Facility. The conveyance infrastructure of both the City and King County reaches its maximum capacity prior to storing flows in the CSO storage facilities. There is no way to segregate specific flows that have already been comingled in the conveyance system.

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6. **Handling of nontreated overflows.** Is there a mechanism in place for the overflow of untreated flows to primarily consist of less polluted material - that is, later storm flows and/or material that has already undergone some settling? Removal of sediment is necessary to reduce contamination of our waterbodies as toxic pollutants have not been removed from sources into the CSO system.

In a combined system, like the City of Seattle's combined sewer system, polluted stormwater flows are combined with sanitary sewage in the same pipe for conveyance to and treatment at the regional wastewater treatment facility.

Untreated combined sewer discharges occur when the conveyance pipes to the regional wastewater treatment facility and the combined sewage storage facilities are at their maximum capacity. This situation typically occurs in the later portion of a storm event. The City of Seattle designs CSO reduction and the system to comply with the State regulations of an average of one untreated discharge per year. As the system is currently designed, the untreated flows will be discharged later in the storm event, but will not have undergone settling prior to discharge.

7. **Public notification of overflows and calculation method of number of gallons (page 18).** People For Puget Sound applauds the Department of Ecology for including a provision for the requirement of public notification system and for including public participation in the development of the plan.

Comment acknowledged and appreciated.

8. **CSO outfall identification (page 18).** Given the human health effects from CSO overflows, all of the CSO outfalls that are exposed during low tide should be clearly marked for the public. One option would be to paint the outfall structure red and to incorporate a large sign so that boaters and other recreational users can avoid that area during overflow periods.

Attempts are made where possible and deemed necessary to make signs visible from both land and water. Further actions on this comment may be considered by the Permittee during the development of the Public Notification Feasibility Study as required by S7.A.8.d of the permit.

9. **Sediment monitoring (page 18).** The outfalls regulated by this permit contribute contaminants to the sediments of Puget Sound and our lakes and rivers. The permit should require a monitoring plan for all of the outfalls along the Duwamish River and other areas in Elliott Bay and freshwater systems. These monitoring plans should be related to the outfalls themselves, not just focused (as in the case of the Duwamish/Diagonal) on whether a specific sediment cap will be recontaminated. Phthalates and other contaminants of concern such as mercury and flame retardants should be included in these monitoring plans. The requirement (#9) should include the minimum contaminants to be monitored and a monitoring schedule. In the draft permit the language is too undefined: "The permittee shall regularly monitor CSO outfalls to characterize CSO impacts and the efficacy of CSO controls."

To further address concerns regarding sediment contamination as a result of CSO discharges, additional sediment monitoring requirements were added to the permit. Appendix E; Permit Changes After Public Comment, S9., has been added to the permit to address sediment concerns.

10. **Water Quality-based Requirements (page 19).** This section should also include sediment excursions as part of state sediment standards (WAC 173-204).

The Sediment Management Standards (Chapter 173-204 WAC) are included in the State WQS by inclusion into Chapter 173-201A-010 (4) WAC which states that:

“Compliance with the surface water quality standards of the state of Washington requires compliance with chapter 173-201A WAC, Water quality standards for surface waters of the state of Washington, chapter 173-204 WAC, Sediment management standards, and applicable federal rules.”

11. **Post Construction Compliance Monitoring Plan (Fact Sheet page 11 and permit page 19).** It is unacceptable that the City proposes to study only a few CSOs. A comprehensive assessment of all CSOs that have overflowed in the past five years is warranted due to the toxic contamination that continues to enter Puget Sound, the Duwamish, and fresh water systems. Further, this plan should be submitted to the Department of Ecology by June 1, 2006. This plan involves information that should have been collected years ago (except for the new outfalls).

The City has studied nearly all their CSOs in order to identify cost effective reduction methods to reduce CSO discharges. As discussed in the fact sheet (pg. 4), the City has submitted three CSO control plan documents. Studies of most of the CSOs are presented in these documents. This permit requirement only applies to those CSOs for which Ecology has no record of specific reduction efforts being planned.

The Department feels that the report submittal date is reasonable. The Department needs time to review monitoring data and further clarify the requirement of the Post Construction Monitoring Plan to ensure that implementation of the plan will allow the Department to verify compliance with the State regulations. The permit requires that the next *CSO Reduction Plan Amendment* include a complete listing of reduction efforts planned for all the permitted CSO outfalls.

Fact Sheet

12. **Inspection Report (page 5) and Inspections.** Given the importance of inspections, People For Puget Sound is concerned that the Inspection Report (from inspections conducted February through March 2005) has not been issued and the results are not included in the Fact Sheet. How can a report based on information collected 5 months ago not be included?

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The Department initiated the inspection of the City's CSOs on February 24, 2005, with the inspection of several outfalls. Additional outfalls were inspected on March 31, 2005. Work load priorities have prevented the completion of the inspection as planned. The inspection will be completed and a report will be issued as soon as possible.

13. **Dry Weather Flows (page 5).** Why are dry weather discharges occurring from the city's CSOs given technology improvements? These flows (2 events totaling an estimated 177,747 gallons in January-May 2005, for example) are prohibited and therefore should be investigated. The Fact Sheet should a) explain why these violations occurred, b) indicate what enforcement action the Department Ecology took and c) indicate corrective actions.

The City has made significant improvements in reducing the frequency and severity of dry weather overflow over the past several years. The following table summarizes events over the last 4 years.

Summary of DWO for 2002-2004

Date	CSO ID	Volume (gallons)	Cause	Corrective Actions
5/8/2002	NPDES 42	899,189	Temporary downstream blockage caused by sediments and tree roots.	Upgraded monitoring equipment to detected problems in timely manner.
6/1/2002	NPDES 165	478	Information not available	
9/13/2002	NPDES 99	1,736	Downstream blockage.	Jet cleaned line and cleaned hydro brake.
11/22/2002	NPDES 18	5,523	Temporary downstream blockage.	No clear indication of cause. Suspect blockage flushed out.
12/10/2004	NPDES 88	5,000	Nature storm caused power failure for the pump station	Restore the power, pumping down storage well, and abating the overflow
12/23/2004	NPDES 41B	60	Lakewater intrusion	Cleaning the pipe and modification of overflow weir wall.
12/24/2004	NPDES 41B	60	Lakewater intrusion	Cleaning the pipe and modification of overflow weir wall.
5/24/2005	NPDES 172	54,287	Saltwater intrusion	Replacing the tide gate
5/25/2005	NPDES 172	123,461	Saltwater intrusion	Replacing the tide gate

Ecology issued a penalty for the incident on 5/8/2002 (Notice of Violation No. DE 02WQNR-4644, Notice of Penalty No. DE 02WQNR-4645). For all other incidents, the Permittee responded in a timely manner with the required notification. The Permittee took the necessary follow up actions to prevent future occurrences of overflows.

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14. **Annual CSO Report (page 7).** The Fact Sheet states that the City did not comply with permit requirements for the annual report and lacks 1) a comparison to a baseline and 2) action plans for the coming year. A lack of baseline data might be expected for the CSO upgrades that were constructed in 2004, but not for older structures and inline flow monitors were installed in all CSO sites by 2001. What action did the Department of Ecology take for compliance violations?

Prior to the installation of the extensive flow monitoring network that exists today, the City established baseline flow information based on hydraulic modeling of the combined sewer system. The Department recognizes that new baselines need to be established based on the data and information now available. Lack of comparisons to baseline numbers is being resolved with the requirement in the permit (S8.B.) to establish baselines for volume and frequency for all CSO outfalls. The Department recognizes that establishing baselines is a complicated process which is done using a combination of hydraulic modeling, historical rainfall data, flow monitoring data, and statistical analysis. The City is fully cooperating with the Department to establish new baselines that better reflect the current operation of their system.

15. **CSS Characterization (page 10 and permit page 19).** The conclusion of the CSO report that only zinc and copper “have the potential to exceed WQS” is incorrect given the impaired sediment quality observed at Seattle CSO outfall locations. To state that sediment impairments are due to historic or other sources is surprising given the overwhelming evidence to the contrary for several CSOs being investigated in the Duwamish Superfund Area. The Department of Ecology should not accept these conclusions and should require a new and complete study (within a short time frame) of the CSO impacts on sediments in our waterbodies. Clearly better sampling is needed.

The characterization report submitted by the City complied with the permit and was approved by the Department. However, the Department recognizes that further work is warranted with regard to evaluating sediment impacts. Refer to Appendix E, S9. was added to address this concern.

16. **Wastewater characterization.** The Fact Sheet states no water or sediment data have been required, nor provided by the City, for the CSO discharges. Providing information about pollutants typically found in CSOs from other locations is completely unacceptable. The Department of Ecology should require complete chemical characterization of Seattle CSOs as part of the draft permit.

Special conditions were added to the permit to address discharge monitoring and sediment monitoring. Refer to Appendix E.

17. **Proposed Permit Limitations Section (page 12 ff).** This section almost completely lacks consideration of sediment standards and sediment impacts, which is one of the major consequences of CSO discharges. Each of the subsections should refer to

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sediments, for example. Table H completely omits all of the sediment impairments (both 1998 and 2002/2004). The “Sediment Quality” subsection (page 18) is inaccurate in that several CSOs have been shown to have sediment impacts along the Duwamish or Elliott Bay as reported in published documents. An order to require demonstration of nonpollution should be issued as part of this draft permit process.

Refer to the response to EPA’s comment no. 1 and the response to Ecology’s Toxic Clean Up Program comments.

Other

18. **Incentives for removing clean flows from the CSO system.** People For Puget Sound requests that the Department of Ecology require that the City of Seattle create an incentive program to remove flows from the combined system, such as clean roof water. Not only would this reduce overflow potential, it would help reconnect clean fresh water to our waterbodies.

According to the City of Seattle, in 2005, Seattle Public Utilities presented to the City Council an options analysis for a rate credit and incentive program for Seattle’s stormwater utility. Among the Executive recommendations in the analysis was that Seattle establish a program that would provide rate credits for customers that manage stormwater on-site through the use of systems such as detention vaults, rain gardens, swales, green roofs, and cisterns. SPU also recommended to the Council that the City establish a grant program, with targeted basin-specific grants to fund investments in private on-site detention and infiltration facilities. The objective of this program is to significantly reduce demand on the stormwater system, and enable the Utility to avoid anticipated large capital investments in centralized stormwater management facilities, through development of decentralized private facilities. Seattle Public Utilities will deliver final program recommendations and cost estimates to the City Council in 2006, and full program implementation is anticipated by 2008.

19. **Flow rather than pollution focus.** Overall, the focus by the City and the Department of Ecology (and King County) is on reduction of flows rather than on reduction of pollutants to Puget Sound. The first flows within a storm carry the highest concentrations of pollution. The system should be designed to divert that water without further mixing by later clean water from a storm or to remove sediment and pollutants while allowing cleaner later flows to bypass to the outfall, if an overflow is to occur. Storage tanks and facilities do not separate out the dirtier flows from the cleaner flows, but instead mixes them.

Both the State’s CSO regulation and EPA’s CSO policy focus on reducing the volume and frequency of CSO discharges as a means to meet water quality standards. Both offer permittees the flexibility in determining how to meet this goal in a cost effective manner. In most instances, separation of flows has not shown to be cost effective and does not address the impact of pollutants typically found in storm water.

APPENDIX E - WATER AND SEDIMENT MONITORING IN SEATTLE RECEIVING WATER BODIES

Prepared by the City of Seattle

**Water and Sediment Monitoring in Seattle Receiving Water Bodies
September 23, 2005**

Seattle Public Utilities

Seattle Public Utilities (SPU) currently conducts routine water quality monitoring in two streams (Pipers Creek and Longfellow Creek), but only Longfellow Creek is affected by combined sewer overflows (CSO). Flow-weighted composite samples are collected at one station near the West Seattle Golf Course during 2-3 storm events per year and are analyzed for total and dissolved metals, conventional parameters (pH, dissolved oxygen, temperature BOD, total suspended solids, turbidity, specific conductance), total petroleum hydrocarbons, fecal streptococcus and fecal coliform bacteria, and microtox.

SPU does not routinely collect water or sediment samples in any other receiving water bodies in Seattle.

King County

King County conducts an extensive ambient water and sediment quality monitoring program in Puget Sound, large lakes (Lake Union and Lake Washington), and small streams in the Seattle area. The following sections provide a brief overview of monitoring stations and parameters analyzed. For detailed information, refer to King County's web page:

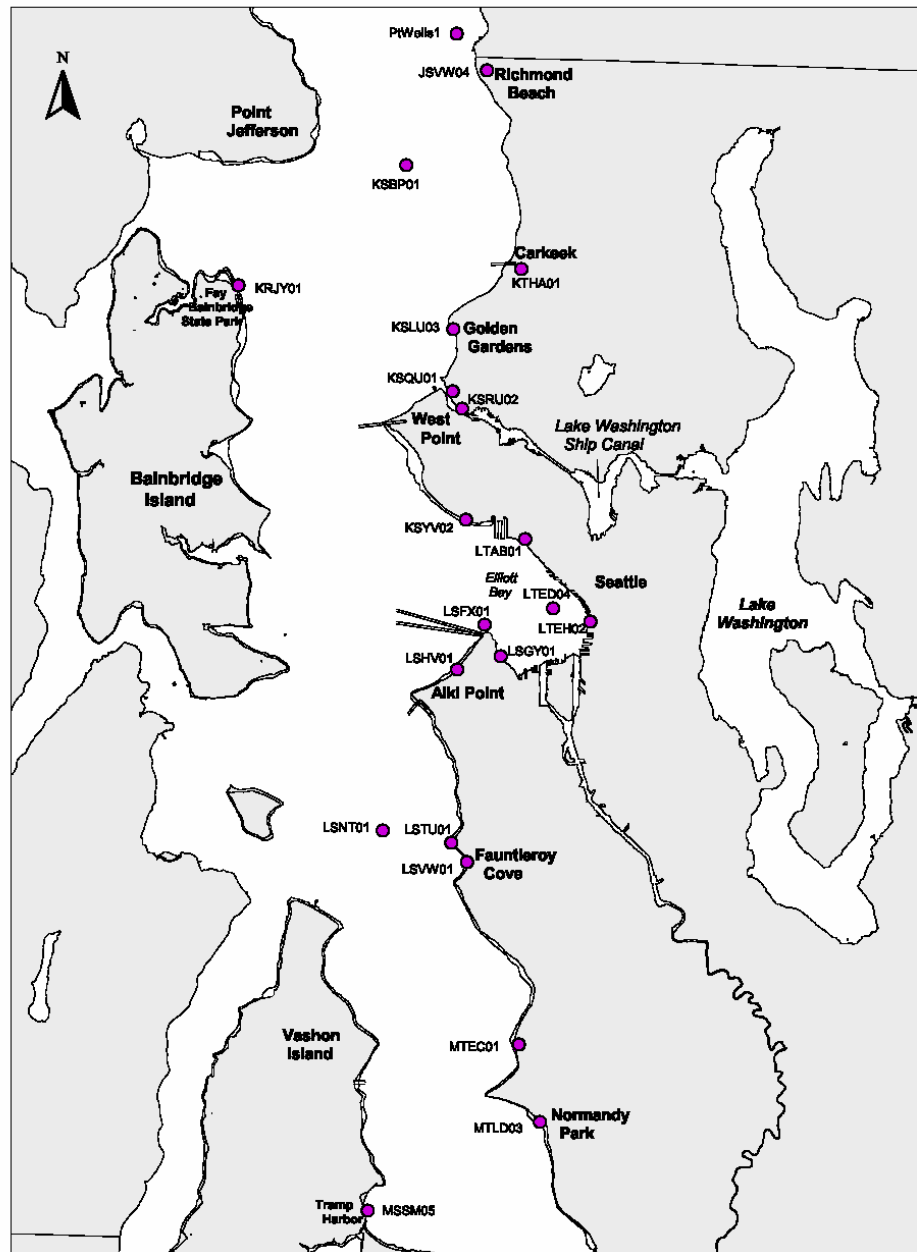
- Marine monitoring program:
<http://dnr.metrokc.gov/wlr/waterres/marine/index.htm>
- Lake monitoring program:
<http://dnr.metrokc.gov/wlr/waterres/lakes/index.htm>
- Small stream monitoring program:
<http://dnr.metrokc.gov/wlr/waterres/streams/creekindex.htm>

Marine Monitoring

King County ambient monitoring station locations are shown on Figure 1. Thirteen stations are located along the Seattle shoreline. Bacteria and conventional water quality parameters (nutrients, salinity, temperature, chlorophyll, dissolved oxygen, solids, and transparency) are generally sampled on a monthly basis at all 13 stations. Metals are generally sampled on a quarterly or semi-annual basis at about 5 stations (KTHA01, KSLU03, KSQU01, LSTU01, and LSVW01).

Sediment samples are collected once a year at the Magnolia station (KSYV02) and are analyzed for conventionals, metals, and organic compounds.

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Reference: King County web page

Figure 1: King County ambient monitoring stations.

Lake Monitoring

Ambient monitoring station locations in Lake Washington and Lake Union are show in Figure 2.

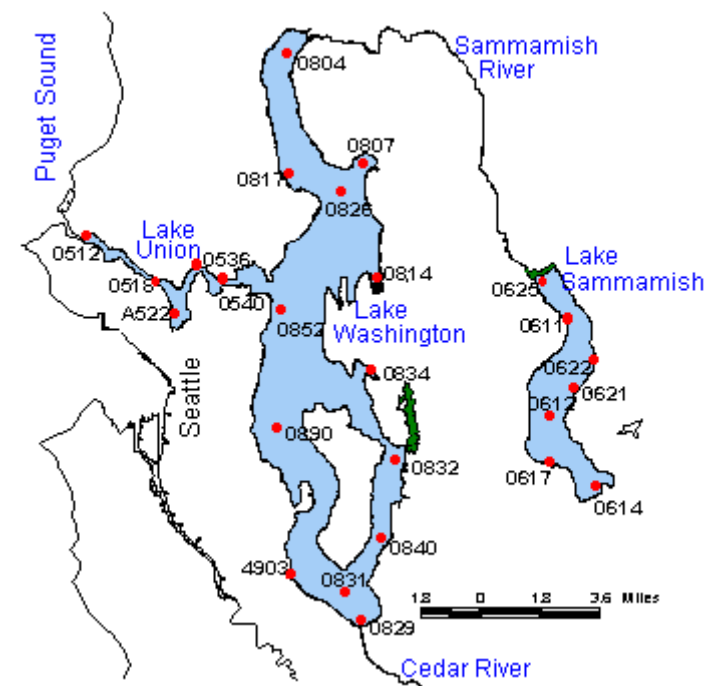


Figure 2. King County lake monitoring stations.

Water samples are collected about once each month and analyzed for temperature, pH, dissolved oxygen, conductivity, nutrients, chlorophyll-a, transparency, and fecal coliform and enterococcus bacteria.

In 2005, SPU contracted with King County to add the three small City lakes (Haller, Bitter, and Green lakes) to its volunteer monitoring program. Under this program, volunteers monitor temperature, Secchi depth, total phosphorus, total nitrogen, and chlorophyll-a in lake water biweekly during the summer months (May through October).

Small Streams Monitoring

King County collects monthly water quality samples from Longfellow Creek at Yancy Street and Brandon Street. Samples are analyzed for conventional parameters (total suspended solids, hardness, conductivity, pH, dissolved oxygen), dissolved and total metals, nutrients, and *Escherichia coli* and fecal coliform bacteria,

Other Data sources

There are a number of other sources of sediment data in Seattle area receiving water bodies, most are related to ongoing sediment cleanup studies (e.g., Harbor Island and Lower Duwamish Waterway Superfund sites and Lake Union sediment remediation project). In most cases,

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sediment samples have been analyzed for the full suite of priority pollutant list parameters (conventional parameters, semi-volatile organic compounds, metals, pesticides, and PCBs). Data are generally available on Ecology's Sedqual database. Sample station locations in the Lower Duwamish Waterway are shown in the attached file (LDW_figures.pdf). Ongoing monitoring is underway at two early action sites that have been remediated (Norfolk and Diagonal/Duwamish early action sites). The Norfolk site was dredged and capped in 1999. Five years of post-cleanup sediment monitoring has been completed. The Diagonal/Duwamish site was dredged and capped in 2003; post-cleanup monitoring is currently underway. Additional information is available on the Lower Duwamish Waterway Group web page (http://www.ldwg.org/rifs_docs.htm).

The Lake Union/Gas Works Park site is currently undergoing a remedial investigation to evaluate the extent and severity of contamination in the sediment offshore of Gas Works Park in Seattle. Phase 2 sediment sampling was completed in 2004.

APPENDIX F - PERMIT CHANGES AFTER PUBLIC COMMENT

- Changes were made to reflect revised issuance date.

Issuance Date: ~~September~~ November 30, 2005
 Effective Date: ~~October~~ December 1, 2005
 Expiration Date: ~~September~~ November 30, 2010

- Changes were made to submittal dates to reflect the change to the issuance date.

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

TABLE 1: REPORT SUBMITTAL REQUIREMENTS

Permit Section	Submittal	Frequency	First Submittal Date
S3.S2.B1	Discharge Monitoring Report CSO Supplemental Characterization Sampling and Analysis Plan	Monthly 1/permit cycle	November 28, 2005 December 31, 2006
S2.B.2.	CSO Supplemental Characterization Study	1/permit cycle	December 31, 2009
S3.	Discharge Monitoring Report	Monthly	January 28, 2006
S3.E.	Noncompliance Notification	As necessary	
S5.A.	Annual Combined Sewer Overflow Report	Annually	June 30, 2006
S5.B.	Combined Sewer Overflow Reduction Plan Amendment	At permit renewal	March May 31, 2010
S5.C.	Combined Sewer Overflow Reduction, Notification of Project Completion Project Engineering Report	As necessary As necessary	
S5.D	Engineering Reports for CSO Reduction Projects	As necessary	
S5.E	Identification of CSO Outfalls Meeting the State Regulator Requirement	1/permit cycle, included in CSO Reduction Plan Amendment	May 31, 2010
S6.	Outfall Evaluation Report	1/permit cycle	December 31, 2006
S7.A.	Documentation of Compliance with Nine Minimum Controls	1/permit cycle with renewal application	March May 31, 2010

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Permit Section	Submittal	Frequency	First Submittal Date
S7.A.8.d.	Public Feasibility Notification Study – DRAFT Public Feasibility Notification Study – FINAL	1/permit cycle 1/permit cycle	September 30, 2006 2007 September 30, 2007 2008
S7.B.1.S 8.A.	Listing of Controlled CSOs Documentation of Public Participation	1/permit cycle, included in CSO Reduction Plan Amendment	March May 31, 2010
S8. A.B.	Documentation of Public Participation CSO Characterization – Baseline	1/permit cycle, included in CSO Reduction Plan Amendment	March May 31, 2010
S8. B.C.	CSO Characterization – Baseline Post-Construction Compliance Monitoring Program – DRAFT Post-Construction Compliance Monitoring Program – FINAL	1/permit cycle; included in CSO Reduction Plan Amendment 1/permit cycle	March June 30, 2009 May 31, 2010
S8.C.S9.	Post-Construction Compliance Monitoring Program – DRAFT Post-Construction Compliance Monitoring Program – FINAL Sediment Survey	1/permit cycle 1/permit cycle	June 30, 2009 March December 31, 2010 2007
S8.D.	CSO Control Alternative – CSO with new or changes selected alternatives	1/permit cycle, included in CSO Reduction Plan Amendment	March May 31, 2010
G1.	Notice of Change in Authorization	As necessary	
G4.	Reporting Planned Changes	As necessary	
G5.	Engineering Report for Construction or Modification Activities	As necessary	
G7.	Application for Permit Renewal	1/permit cycle	March May 31, 2010
G21.	Reporting Anticipated Noncompliance	As necessary	
G22.	Reporting Other Information	As necessary	

3. Removed outfall per City of Seattle comment.

TABLE 2: AUTHORIZED CSO OUTFALLS (~~9392~~ OUTFALLS)

Outfall Number	Overflow Outfall Location	Receiving Water Body	Water Body ID No.	Latitude (North)	Longitude (West)
172	Alaskan Way at Columbia Street	Elliott Bay	WA-09-0010	47° 36' 10" N	122° 20' 10" W

4. Added the following part to S2. in response to comments for the need for effluent monitoring and additional characterization of the discharges.

B. CSO Supplemental Characterization Study

For the purpose of supplementing previous characterization, the Permittee shall submit a *CSO Supplemental Characterization Sampling and Analysis Plan* for Department approval by **December 31, 2006**. The approved plan shall be implemented during the period from July 1, 2007 to June 30, 2009. The final *CSO Supplemental Characterization Study* report shall be submitted to Department by **December 31, 2009**.

1. The *CSO Supplemental Characterization Sampling and Analysis Plan* shall include a list of at least 8 CSO outfalls to be included in the study. The Permittee must specify the criteria for the selection of the study outfalls. The Permittee must attempt to choose the highest discharge volume CSOs such that the study outfalls represent greater than 75% of the Permittee's discharges based on historical CSO discharge volume data. The Permittee shall collect discharge samples 3 times during the 2-year monitoring period from each of the identified study outfalls. The samples must be sampled and analyzed in accordance with the approved CSO Discharge Sampling and Analysis Plan for both conventional and priority pollutants as shown in Appendix B of the permit.
 2. The final *CSO Supplemental Characterization Study* report shall include a summary of the findings and records of the analytical data collected for each of the study outfalls. A summary of the data must also be provided to the Department in an Excel spreadsheet format.
5. Added the following part to S5. to address the need for the City and County identify potential impacts to downstream entities.

D. Engineering Reports for CSO Reduction Projects

The Permittee shall submit to the Department a plan for each specific CSO reduction construction project. Engineering documents associated with the plan must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by the

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Department prior to any construction. The plan shall specify any contracts, ordinances, methods for financing, or other arrangements necessary to achieve this objective. In addition, the plan must identify the potential hydraulic impact(s) of the project on downstream wastewater conveyance and treatment facilities.

6. The following was added to S5. to address compliance with the State regulatory standard. The submittal requirements of this part replace those of S7.B. shown below.

E. CSO Outfalls which Meet the State Regulatory Requirement

1. IDENTIFICATION OF CSO OUTFALLS MEETING THE STATE REGULATOR REQUIREMENT

The Permittee shall determine which of the permitted CSO outfalls can be categorized as meeting the “greatest reasonable reduction” which means control of each CSO such that **an average of one untreated discharge may occur per year**⁷. The Permittee shall determine whether a CSO meets this regulatory requirement based on historical long-term discharge data, modeling or other reasonable methods as submitted to Ecology. A listing of CSO outfalls which have been identified by the Permittee as meeting this regulatory requirement shall be included in the CSO Reduction Plan Amendment.

2. PERFORMANCE STANDARD FOR CSO OUTFALLS MEETING THE STATE REGULATORY REQUIREMENT

A performance standard shall apply to all CSO outfalls which have been identified by the Permittee in the CSO Reduction Plan as meeting the “greatest reasonable reduction” as required by S5.E.1. The performance standard is derived from the State regulatory requirement as specified in WAC 173-245-020(22) and from the Permit Writer’s Manual which provides guidance in specifying the compliance period upon which to base the performance standard.⁸ Compliance with the performance standard shall be based on a **5-year average for the duration of permit cycle**⁹. The compliance point is determined once during the permit term, based on the 5-year average of the number of untreated discharge events for each applicable CSO outfall for the preceding five calendar years (January through December) using the data provided at the time of application for permit renewal.

Annual reporting of the number of untreated discharge events based on a 5-year moving average, calculated once annually, is required in the Annual CSO Report per S5.A.

⁷ WAC 173-245-020(22)

⁸ Ecology’s Permit Writers Manual, version July 2004, pV-23. Averaging period may be based on 5-year permit term.

⁹ A violation of the performance standard for a given outfall is based on the 5-year average of events and is considered a single violation per outfall.

S7.

~~B. Water Quality-based Requirements for CSOs (For Controlled CSOs)~~

~~The Permittee shall not discharge any pollutant at a level that causes or contributes to an in-stream excursion above narrative criteria adopted as part of Washington State water quality standards (WAC173-201A) for CSO outfalls which are controlled⁴⁰.~~

- ~~1. The Permittee shall determine which of the permitted CSO outfalls can be categorized as controlled based on long-term discharge data. A listing of controlled CSO shall be included in the CSO Reduction Plan Amendment.~~

~~The Permittee shall comply with the following performance standards. These standards shall apply to controlled CSOs.~~

- ~~2. The Permittee shall discharge no more than an average of one overflow event per year per CSO based on a long-term average. Compliance will be based on a 5-year average for the permit cycle. The compliance point will be based on the 5-year average as provided at the time of application for permit renewal. Annual reporting of the 5-year moving average is required in the Annual CSO Report.~~

7. In response to comments, a sediment monitoring section was added.

S9. SEDIMENT MONITORING**Sediment Survey Report**

The Permittee shall submit a *Sediment Survey* report to the Department by **December 31, 2007**. Based on the results of the survey, additional sediment monitoring may be required by the Department in the vicinity of the Permittee's CSO outfalls.

The Permittee shall gather any readily available existing sediment quality data for areas in the vicinity of the permitted CSO outfalls. Sources of data may be from other agencies such as the Department of Ecology's Sediment Quality Information System (SEDQUAL) database or other reliable sources. The report shall include a summary of findings and a summary of the data to be submitted to the Department for review and evaluation to determine if further sediment monitoring may be needed.

⁴⁰ ~~The City of Seattle does not have any CSOs which are identified as controlled during this permit cycle.~~

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8. Appendix B was added to the permit as a requirement of the pollutant analysis for the effluent characterization study.

APPENDIX B (PERMIT)

EPA "PART D" NPDES APPLICATION TESTING REQUIREMENTS

Conventional Pollutants

BOD₅, Total Suspended Solids, Fecal Coliform, pH, Oil and Grease, Ammonia and Volatile Solids

Priority Pollutants

The following pollutant scan data are required at time of NPDES permit application for municipal treatment facilities with design flow greater than 1.0 mgd. At least three scans are required, conducted during the term of the previous permit.

METALS & MISC.

Antimony
Arsenic
Beryllium
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Selenium
Silver
Thallium
Zinc
Cyanide
Total Phenolic Compounds
Hardness (As CaCO₃)

VOLATILE ORGANICS

Acrolein
Acrylonitrile
Benzene
Bromoform
Carbon Tetrachloride
Chlorobenzene
Chlorodibromo-Methane
Chloroethane
2-Chloro-Ethylvinyl Ether
Chloroform
Dichlorobromo-Methane
1,1-Dichloroethane
1,2-Dichloroethane
Trans-1,2-Dichloro Ethylene
1,1-Dichloroethylene
1,2-Dichloropropane
1,3-Dichloro-Propylene

VOL. ORGANICS (Cont.)

Ethylbenzene
Methyl Bromide
Methyl Chloride
Methylene Chloride
1,1,2,2-Tetrachloro-Ethane
Tetrachloro-Ethylene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorethylene
Vinyl Chloride

ACID EXTRACTABLES

P-Chloro-M-Cresol
2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
4,6-Dinitro-O-Cresol
2,4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
Pentachlorophenol
Phenol
2,4,6-Trichlorophenol

BASE NEUTRALS

Acenaphthene
Acenaphthylene
Anthracene
Benzidine
Benzo(A)Anthracene
3,4 Benzo-Fluoranthene
Benzo(Ghi)Perylene
Benzo(K)Fluoranthene
Bis (2-Chloroethoxy) Methane

BASE NEUTRALS (Cont.)

Bis (2-Chloroethyl)-Ether
Bis (2-Chloroisopropyl) Ether
Bis (2-Ethylhexyl) Phthalate
4-Bromophenyl Phenyl Ether
Butyl Benzyl Phthalate
2-Chloronaphthalene
4-Chlorophenyl Phenyl Ether
Chrysene
Di-N-Butyl Phthalate
Di-N-Octyl Phthalate
Dibenzo(A,H) Anthracene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3-Dichlorobenzidine
Diethyl Phthalate
Dimethyl Phthalate
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclo-Pentadiene
Hexachloroethane
Indeno(1,2,3-CD)Pyrene
Isophorone
Naphthalene
Nitrobenzene
N-Nitrosodi-N-Propylamine
N-Nitrosodi-Methylamine
N-Nitrosodi-Phenylamine
Phenanthrene
Pyrene
1,2,4-Trichlorobenzene

9. Several other minor wording changes were made to the permit in response to comments made. Refer to the final permit document available at http://www.ecy.wa.gov/programs/wq/permits/northwest_permits.html